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ABSTRACT

The Massachusetts Institute of Technology (MIT) Libraries intend to provide a gateway from the campus-wide telecommunications network into the electronic, printed, and human resources offered by the library systems. The design of such a gateway requires an understanding of both current and potential library users, the needs of those users, their library research habits, and the patterns with which they might use library systems and services. The purpose of this project was to obtain information on users, determine the library systems and services to be made accessible, develop and test a prototype online gateway, and assess the feasibility of and make recommendations for the implementation of such a system. Questionnaires were sent to a 10% stratified sample of the entire MIT community. The response rate was 21 percent (371 questionnaires). Information was elicited on the use of currently available library services and those that could be made available through the campus network; when that online access would be used; the method of access; and satisfaction with MIT library services. A prototype gateway system was developed that consists of a number of separate modules addressable from the main menu that lead to the library online catalog, assorted items of library information, fill-in templates for various library activities, and online library pathfinders or tutorials. The gateway was tested against a small sample of the MIT community. While the input was consistently positive, there were a number of suggestions, comments, and criticisms. It is concluded that some form of electronic access to library services should be provided and recommendations are offered for capabilities that should receive priority in implementing a gateway system. Two appendices provide a copy of the questionnaire and numerous sample screens. (Includes 25 references.) (BBM)

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Library Services and the Online Campus Gateway

Final Report

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November 1989

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I. INTRODUCTION

In July 1987, the Council on Library Resources awarded a grant to the Massachusetts Institute of Technology under the Council's Cooperative Research Grants Program for Librarians and Faculty Members. The project, "Library Services and the Online Campus Gateway", was carried out by Rich Hines, Reference and Instruction Technology Specialist at MIT, and Candy Schwartz, Associate Professor, Graduate School of Library & Information Science, Simmons College.

The importance of library participation in what is sometimes called "the wired campus", or "electronic scholarship", is underscored by Patricia Battin (1984), whose vision

> "...reflects the following logic: the library in its role as the knowledge center of the academic enterprise represents the meat in the electronic sandwich, and that role must be enhanced and expanded to meet the needs of the electronic scholar." (p.12)

Moran, Surprenant, & Taylor (1987) reiterate this theme in their very frank discussion of the impact of a "wired campus" project on the library system at Brown University. The Library's concerted effort to achieve a central role in an environment of electronic information was undermined by problems associated with the project itself--lagging time schedules, unmet expectations, concerns about budget and time expenditures, poor communication between designers and the user population, and a general lack of coordination between the different computing facilities on campus.

The Massachusetts Institute of Technology Libraries are moving towards increased participation in the concept of the computer-based academic "workstation". The Libraries intend to provide a

gateway from the campus-wide telecommunications network into the electronic, printed, and human resources offered by the library systems. Shortly before (and independent of) the receipt of the grant, the MIT Libraries undertook the development of a strategic plan. The resulting document was presented to the Provost of the University in December 1988. The opening paragraph, headed "The MIT Libraries at the Beginning of the 21st Century", makes it clear that the plan is fully responsive to the needs of the University community in a changing environment.

> "The increasing creation, storage, and transmission of information in electronic form will enlarge and transform the Libraries as we know them. Electronic information will dictate new roles and relationships for the Libraries. By the beginning of the 21st century, the Libraries will have become an even more dynamic force in integrating information into education and research on the MIT campus." (Massachusetts Institute of Technology, 1988, p.1)

In this context, the development of a prototype electronic gateway to library services is well attuned to the vision and the goals set out in the strategic plan.

II. OBJECTIVES

The design of this gateway requires an understanding of both current and potential library users (especially as user populations may change in the context of remotely accessible libraries), the needs of those users, their research habits insofar as library materials and services are or might be involved, and the patterns with which they might use library systems and services.

As stated in the project proposal, the objectives of this research were:

A. To develop a taxonomy of potential local and remote users of an online gateway to library systems and services at MIT.

B. To determine library service needs and potential patterns of use for different user groups.

C. To develop a taxonomy of levels of library systems and services to be accessible through an online gateway.

D. To develop and test a prototype online gateway.

E. To assess the feasibility of and make recommendations for the implementation of an online gateway.

III. THE SETTING -- MIT AND THE MIT LIBRARIES

The Massachusetts Institute of Technology, located in Cambridge, Massachusetts, is an independent co-educational privately endowed university with about 9,400 students and 1000 faculty. It is broadly organized into five academic schools -- Architecture & Planning, Engineering, Humanities & Social Science, Technology, and Management -- and the Whitaker College of Health Science and Technology. Within these schools and the College are 22 academic departments, as well as many interdepartmental laboratories, centers, and divisions, which extend beyond the traditional departmental boundaries. Physically, the campus is decentralized and is spread over 142 acres along the Charles River Basin in Cambridge.

The MIT Libraries serve the Institute through a series of 5 physically separate divisional libraries and their branches:

The Rotch Library of Architecture and Planning, including the Rotch Library Visual Collections

The Barker Engineering Library, including the Aeronautics and Astronautics Library

The Humanities Library, including the Music Library and the

Women's Studies Research Room

The Dewey Library (management and social sciences), including the Industrial Relations Collection

The Science Library, including the Lindgren Library (earth and planetary sciences) and the Schering-Plough Library (medical sciences)

and two institution-wide collections:

The Institute Archives & Special Collections, including Rare Books

The MIT Museum and Historical Collections (which became a body independent of the Libraries as of July 1, 1989)

Cataloguing of all materials for MIT Libraries is centralized in the Catalogue Department, which uses OCLC as its bibliographic utility. Access to the holdings of the MIT Libraries is provided through three different catalogues. The Dewey Decimal catalogue is a combined author/title/subject listing on microfiche, representing materials acquired by all MIT Libraries prior to 1964. A copy of the Dewey catalogue is available in all MIT libraries. The Institute Library Catalogue, currently housed in the Humanities Library, is a divided card catalogue, and lists materials acquired by all MIT Libraries from 1963 through 1987, and selected earlier works. Each divisional and branch library has a separate card catalogue for materials acquired by that library from 1963 through 1987, and selected earlier works. All card catalogues were closed in August of 1987.

The third type is a GEAC online catalogue/circulation system, named Barton (after William Barton Rogers, the founder of MIT). Barton includes records for materials acquired and catalogued for all MIT Libraries since 1974, selected earlier works, and materials currently on order. Retrospective entry of items into Barton is in

process. Barton is searchable via public access terminals available in each library. Each divisional Library has four terminals, and each branch library has one. Barton includes an electronic mail function which is used for internal communications only (i.e. inter-staff memos, and requests for items to be brought from storage). Barton is available to remote users through dial access.

These three catalogues do not fully reflect certain categories of materials, including music, pamphlets, sound recordings, photographs, manuscript and archival collections, museum objects, technical reports, maps, and some government documents. Certain of these are represented in special listings, located in the appropriate divisional or branch library.

The MIT Libraries provide the full range of public services which might be expected in an academic research setting. Interlibrary loan is centralized in the Humanities Library, and is served by OCLC for most monographic materials, and by a variety of other sources for materials such as government documents and research reports. In-house copying of MIT holdings is provided by the Microreproduction Laboratory, which offers micrographic and reprographic services, and maintains the library copying machines. Online searching of remote databases was instituted at MIT in the late 1970s. Staff at divisional and branch libraries perform ready reference searching, and the centralized Computerized Literature Search Service (CLSS) handles all other types of online searching and current awareness services.

As might be expected, and largely independent of the

Libraries, the MIT campus has been the focus of wide-scale applications of new technologies to the educational process. The most significant of these is Project Athena, which was introduced in May 1983, and is intended to explore the uses of advanced technology in undergraduate education. In response to the needs of Project Athena and other computing resources at MIT, the Institute is currently wiring the campus with a fiber optic telecommunications system in an effort to provide interactive linking between all departments, laboratories, and units of the campus.

It is estimated that by the end of the 1987/88 academic year, the network connected some 1700 machines scattered through all parts of the extended MIT campus. Among these were 400 Athena terminals arranged in 14 physical "clusters" and linked through an architecture which addresses a range of machine types and applications programs. A full description of the goals, administrative structure, and overall operating architecture of Project Athena may be found in Balkovich, Lerman, & Parmalee (1985). Library applications programs would not run on Athena machines, but would be accessible through Athena clusters. Several of the MIT Libraries house Athena clusters. Accounts on Athena computing facilities were open only to undergraduates until the 1989/1990 academic year, at which time graduates were granted the same privilege.

In 1989 it is intended that the Libraries online catalogue will be made accessible through the MIT campus network. The immediate goal of the Libraries is to offer access to such online

information as is currently available, and to provide information about library services and activities.

The opportunities afforded by the technological advances on the MIT campus have been used to advantage for library services. An example can be found in the electronic mail outreach service provided at the Barker Engineering Library. Faculty, staff, and students of the School of Engineering have 24 hour access to a messaging system which they may use to request item locations (including inter-library loan requests as well as local holding verification), make purchase suggestions, and ask for online searches. In the case of online searches, simple queries may be performed without further user interaction, and the results may then be downloaded to the user's account. More complex queries may result in a scheduled appointment for further refinement, or in an interactive interview over the messaging system.

IV. THE USER SURVEY

In order to develop a taxonomy of actual and potential users of MIT library systems and services, and to determine likely service needs and use patterns for different user groups, a data gathering instrument was needed. There had been several efforts at MIT to gather decision-making data preparatory to bringing the library into the campus-wide network. Most recently, a survey of undergraduates had been taken to assist in deriving design specifications for an online information system for the MIT Libraries on Project Athena (Lee, 1986).

IV.A. Lee's Survey

The thrust of this research, conducted by an undergraduate student for her thesis requirement, was to discover which functions were most needed by students, and how frequently. A questionnaire was designed with input from librarians and Project Athena staff, and was sent to 1000 undergraduates, eliciting a response rate of 22.2%. The data were analyzed in depth, and both the instrument and the findings have proven very helpful.

Keeping in mind that the population was undergraduates, the following summary conclusions were drawn: the average use frequency is several times a month, usually in the evenings or on weekends; students are generally satisfied with library services, and use the library principally for access to materials not available elsewhere, or for what was characterized as "study/ sleep"; students find the idea of an online system attractive, and would use it for asking for reference assistance (and presumably for locating items in the online catalogue, which did not exist at the time the survey was taken).

Table 1 shows the functions included in the survey, in broad categories. Table 2 displays the same list, in rank order, the highest ranked item being first. The rank is based on the number of times an item was chosen as "important" or "very important".

IV.B. Elements of the Gateway Questionnaire

Lee's research was taken into account in designing the gateway project questionnaire, and in fact many of the functions which she detailed are included in the later instrument. Additional items

for the questionnaire were gathered from the MIT library community, and from the professional literature. Berger & Klemperer (1983), Dewey (1984), Diskin & Michalak (1985), Evans (1987), Jarvis (1985), Jarvis & Dow (1986), Michalak (1984), Roysdon & Elliott

General Information (remains standard)
Listing of the operating hours of all the libraries
Map containing locations of all libraries
Listing of which libraries contain what subject materials
Descriptions of each library and what resources are available at each library
Special Listings (need to be updated periodically)
Listing of special collections (pamphlets, plans, maps) not contained in card catalogue)
Listing of new books in each library
Listing of all periodicals and libraries where located
Titles and abstracts for MIT theses
Listing of reserved material for specific classes
Card Catalogue-Related Functions
Access to the Libraries' card catalogue
Access including availability information (check in/out)
Access including library where located
Access including location within library where located
Browse by consecutive call number
Guided search by subject
User-driven search by subject
Computer Functions
Ability to produce a bibliography from catalogue entries
Ability to get a hard copy of any information on screen
Other Functions
Tables of contents/indexes of all issues of periodicals
Search databases for materials not in the MIT Libraries
On-line help by electronic mail to reference librarians
Records of past problem sets/tests for all undergraduate classes

Table 1. Functions Organized by Category in Undergraduate Survey (extrapolated from Lee, 1986, Tables 5-XVI, 5- XVII, and 6-I).

1	Access to the Libraries' card catalogue
2	Listing of which libraries contain what subject materials
3	Access including availability information (check in/out)
4	Ability to get a hard copy of any information on screen
4	Listing of all periodicals and libraries where located
6	Descriptions of each library and what resources are available at each library
7	Guided search by subject
8	User-driven search by subject
9	Listing of the operating hours of all the libraries
10	Access including library where located
11	Tables of contents/indexes of all issues of periodicals
12	Listing of reserved material for specific classes
13	Ability to produce a bibliography from catalogue entries
14	On-line help by electronic mail to reference librarians
15	Access including location within library where located
16	Map containing locations of all libraries
17	Titles and abstracts for MIT theses
18	Listing of special collections (pamphlets, plans, maps) not contained in card catalogue)
19	Search databases for materials not in the MIT Libraries
20	Browse by consecutive call number
21	Records of past problem sets/tests for all undergraduate classes
22	Listing of new books in each library

Table 2. Ranked List of Functions in Undergraduate Survey (extrapolated from Lee, 1986, Tables 5-XVI, 5-XVII, and 6-I).

(1988); Smith & Hutton (1984), Sweeney (1982), Urbanek (1982), and Weise & Borgendale (1986) all offer examples of online public access systems which gobeyond catalogue searching. Typical added features include: information related to library personnel, services, and facilities; computer-assisted instruction in tasks such as bibliography preparation; electronic mail services for communication and also for functions such as interlibrary loan, equipment booking and rental, room reservation, item requests, and so on; specialized subject bibliographies or pathfinders; files of common reference queries and their answers; document delivery

functions; community calendars and referral services; book reviews; and access to reference tools such as dictionaries, almanacs, encyclopedias, thesauri, and, most recently, indexing services (such as H.W. Wilson files).

With these potential applications in mind, the survey instrument was drafted, pretested against library staff and a small sample of students in the Barker Engineering Library, and printed for distribution in a mail survey (a copy of the final form appears in Appendix A, portions are presented in the following pages for ease of reference). As much as possible, an attempt was made to avoid jargon, and to use phraseology appropriate to the experiences of the MIT community.

The questionnaire is divided into 4 parts: identification of the status of the respondent (Questions 1-4), current use of library functions and facilities (Q.5-6), potential use of library functions and facilities through the proposed gateway (Q.7-9), and satisfaction with current library services (Q.10-11).

Q.1 and Q.2 (Figure 1) reflects the administrative and academic organization at MIT. "Course" is the term used to designate academic department. "Industrial Liaison Program Members" are external corporations and institutions permitted to purchase access to the MIT Libraries, and represent a group which may make heavy use of dial access. Q.2 also serves to provide information related to the size of a potential dial access population.

It was hoped that values entered in response to Q.3 (Figure 2) might be useful in correlation with responses to questions

Question 1: What is your status: (CHECK ONE and fill in the blank as appropriate)

[ ] Faculty
[ ] Research Staff
[ ] Administrative Staff Your
[ ] Academic Staff Department/Office: _____
[ ] Support Staff

[ ] Undergraduate Student Your
[ ] Graduate Student Course: _____

[ ] Industrial Liaison Program Member
[ ] Other

Question 2: Do you live on campus? (CHECK ONE)

[ ] Yes [ ] No

Figure 1. Gateway Questionnaire, Q.1 and Q2

Question 3: How long have you been associated with MIT? _____ years

Figure 2. Gateway Questionnaire, Q.3

Question 4: Do you currently use the MIT Libraries? (CHECK ONE)

[ ] Yes [ ] No (If your answer to Question 4 is NO, please skip to Question 7)

Figure 3. Gateway Questionnaire, Q.4

concerning user satisfaction, and nature and frequency of library or gateway use. Q.4 (Figure 3) allows for the respondent who may not now use the library, but who might use an electronic gateway.

Question 5: The following services are currently available on site in the Libraries. Please indicate how frequently you use each of these services during the semester. (CHECK ONE BOX IN EACH ROW)

	several or more times a week	several times a month	several times a semester	rarely	never
I use the card catalog or the online catalog					
to find a particular item	[ ]	[ ]	[ ]	[ ]	[ ]
to find out whether a particular item is on the shelves	[ ]	[ ]	[ ]	[ ]	[ ]
to browse	[ ]	[ ]	[ ]	[ ]	[ ]
I use reference services and reference collections					
to search the reference collection myself	[ ]	[ ]	[ ]	[ ]	[ ]
to ask a librarian for assistance in person	[ ]	[ ]	[ ]	[ ]	[ ]
to ask a librarian for assistance over the phone	[ ]	[ ]	[ ]	[ ]	[ ]
to ask a librarian for assistance via electronic mail	[ ]	[ ]	[ ]	[ ]	[ ]
to request a computer search	[ ]	[ ]	[ ]	[ ]	[ ]
to request a book from storage	[ ]	[ ]	[ ]	[ ]	[ ]
I use circulation services					
to take out a book	[ ]	[ ]	[ ]	[ ]	[ ]
to renew a book I have out	[ ]	[ ]	[ ]	[ ]	[ ]
to put a hold on a book someone else has out	[ ]	[ ]	[ ]	[ ]	[ ]
to take out a reserve book	[ ]	[ ]	[ ]	[ ]	[ ]
I use library copying services and machines					
to do my own photocopying	[ ]	[ ]	[ ]	[ ]	[ ]
to make my own paper copy from a microfiche	[ ]	[ ]	[ ]	[ ]	[ ]
to request microfiche copying from the library	[ ]	[ ]	[ ]	[ ]	[ ]
to request copying from the Microreproduction Lab	[ ]	[ ]	[ ]	[ ]	[ ]
I use the following special collections or materials					
theses and dissertations	[ ]	[ ]	[ ]	[ ]	[ ]
maps	[ ]	[ ]	[ ]	[ ]	[ ]
government documents	[ ]	[ ]	[ ]	[ ]	[ ]
musical recordings and scores	[ ]	[ ]	[ ]	[ ]	[ ]
architectural drawings	[ ]	[ ]	[ ]	[ ]	[ ]
the Rotch Visual Collection	[ ]	[ ]	[ ]	[ ]	[ ]
the MIT Museum collections	[ ]	[ ]	[ ]	[ ]	[ ]
the Institute Archives	[ ]	[ ]	[ ]	[ ]	[ ]
I use other library services					
to borrow a book from another (non MIT) library	[ ]	[ ]	[ ]	[ ]	[ ]
to request special subject guides prepared by library staff	[ ]	[ ]	[ ]	[ ]	[ ]
to suggest books for purchase	[ ]	[ ]	[ ]	[ ]	[ ]
to see a list of journals held by other local libraries	[ ]	[ ]	[ ]	[ ]	[ ]
to see a list of recent additions to the library collections	[ ]	[ ]	[ ]	[ ]	[ ]
to view audiovisual media (for instance, course tapes)	[ ]	[ ]	[ ]	[ ]	[ ]

Figure 4. Gateway Questionnaire, Q.5

Question 7: The following services could be made available electronically through the Campus Network. Please indicate how frequently you would use each during the semester. (CHECK ONE BOX IN EACH ROW)

	several or more times a week	several times a month	several times a semester	rarely	never
I would search the catalog online					
to find a particular item	[ ]	[ ]	[ ]	[ ]	[ ]
to find out whether a particular item is on the shelves	[ ]	[ ]	[ ]	[ ]	[ ]
to browse	[ ]	[ ]	[ ]	[ ]	[ ]
to create my own bibliography on disc	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online reference services					
to request assistance from a librarian	[ ]	[ ]	[ ]	[ ]	[ ]
to request a computer search	[ ]	[ ]	[ ]	[ ]	[ ]
to request a book from storage	[ ]	[ ]	[ ]	[ ]	[ ]
to search computer databases myself	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online circulation services					
to renew a book I have out	[ ]	[ ]	[ ]	[ ]	[ ]
to put a hold on a book that is on the shelves	[ ]	[ ]	[ ]	[ ]	[ ]
to put a hold on a book someone else has out	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online copy request services					
to borrow a book from another (non MIT) library	[ ]	[ ]	[ ]	[ ]	[ ]
to request a photocopy of a journal article or other paper	[ ]	[ ]	[ ]	[ ]	[ ]
to request a microfiche copy of a thesis or other paper	[ ]	[ ]	[ ]	[ ]	[ ]
I would search the following special listings online					
maps	[ ]	[ ]	[ ]	[ ]	[ ]
government documents	[ ]	[ ]	[ ]	[ ]	[ ]
musical recordings and scores	[ ]	[ ]	[ ]	[ ]	[ ]
architectural drawings	[ ]	[ ]	[ ]	[ ]	[ ]
the Rotch Visual Collection	[ ]	[ ]	[ ]	[ ]	[ ]
the MIT Museum collections	[ ]	[ ]	[ ]	[ ]	[ ]
the Institute Archives	[ ]	[ ]	[ ]	[ ]	[ ]
audiovisual media collections (for instance, course tapes)	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online library services					
for a list of library hours	[ ]	[ ]	[ ]	[ ]	[ ]
for a description of subject areas of specific MIT libraries	[ ]	[ ]	[ ]	[ ]	[ ]
for a list of subject specialities of MIT librarians	[ ]	[ ]	[ ]	[ ]	[ ]
for maps of specific MIT libraries	[ ]	[ ]	[ ]	[ ]	[ ]
to look at subject guides prepared by library staff	[ ]	[ ]	[ ]	[ ]	[ ]
to suggest books for purchase	[ ]	[ ]	[ ]	[ ]	[ ]
to see recent additions to the library collections	[ ]	[ ]	[ ]	[ ]	[ ]
to schedule tours of MIT libraries	[ ]	[ ]	[ ]	[ ]	[ ]
to schedule library conference rooms	[ ]	[ ]	[ ]	[ ]	[ ]
for tutorials on doing research in the library	[ ]	[ ]	[ ]	[ ]	[ ]
to search catalogs of other local libraries	[ ]	[ ]	[ ]	[ ]	[ ]

Figure 5. Gateway Questionnaire, Q.7.

Q.5 and Q.7 (Figures 4 and 5), which contain long lists of library services, are phrased as direct statements (for instance, "I use the card catalog or the online catalog to..."), and are divided into 6 functional categories. While the items in each list are conceptually similar, the wording is very different, since Q.5 refers to current (typically on site) usage, and Q.7 refers to services which might be available through the gateway. In both cases, the user is asked to indicate frequency of use for each item in the list, using a scale which ranges from "several or more times a week" to "never". Q.6 and Q.8 (Figure 6) concern time of library or gateway use, and Q.9 (Figure 7) looks at likely methods of gateway access. Taken together, these five questions (Q.5-9) form the heart of the survey, and the source for much useful decision-making data in the design of the interface, as well as for general systems planning.

Question 6: What days and times are you most likely to use the MIT Libraries? (CHECK AS MANY AS APPLY)

	8:30am-1:00pm	1:00pm-5:00pm	5:00pm-7:00pm	7:00pm-11:00pm	11:00pm-8:30am
Mondays-Thursdays	[ ]	[ ]	[ ]	[ ]	[ ]
Fridays	[ ]	[ ]	[ ]	[ ]	[ ]
Saturdays	[ ]	[ ]	[ ]	[ ]	[ ]
Sundays	[ ]	[ ]	[ ]	[ ]	[ ]

Question 8: With 24 hour access, what days and times would you be most likely to access library services online? (CHECK AS MANY AS APPLY)

	8:30am-1:00pm	1:00pm-5:00pm	5:00pm-7:00pm	7:00pm-11:00pm	11:00pm-8:30am
Mondays-Thursdays	[ ]	[ ]	[ ]	[ ]	[ ]
Fridays	[ ]	[ ]	[ ]	[ ]	[ ]
Saturdays	[ ]	[ ]	[ ]	[ ]	[ ]
Sundays	[ ]	[ ]	[ ]	[ ]	[ ]

Figure 6. Gateway Questionnaire, Q.6 and Q.8

Question 9: When library services are made available online through the Campus Network, how would you be most likely to gain access to them? (CHECK ONE)

[ ] I would not access library services online
[ ] I would use terminals in the libraries
[ ] I would terminals on campus not in the libraries
[ ] I would use my personal computer
[ ] Other (please indicate: _____)

Figure 7. Gateway Questionnaire, Q.9

Q.10 and Q.11 (Figure 8), while not directly concerned with the subject of this research, serve to give the respondent a forum for input and feedback. The responses were collated and shared (verbatim in the case of Q.11) with MIT library administration.

Question 10: How would you describe your satisfaction with library services at MIT? (CHECK ONE)

[ ] Very satisfied
[ ] Satisfied
[ ] Neither satisfied nor dissatisfied
[ ] Dissatisfied
[ ] Very dissatisfied

Question 11:

Use this space to address areas of concern or interest which were not included in the survey. Are there additional services which you feel the Libraries could provide, or cases where improvements could be made to existing services?

_____

_____

_____

_____

_____

Figure 8. Gateway Questionnaire, Q.10 and Q.11

IV.C. Sample

The scope of the survey for the gateway project went beyond the undergraduate community, and included all levels of students, faculty, and administrative staff (with the exception of professional librarians). The size of the population dictated that a sample be taken, and a random sampling algorithm developed by the MIT Systems Office was used for this purpose. A 10% stratified sample of the entire MIT community was run to produce a set of mailing labels. During and subsequent to the run, some records were rejected, for one of four reasons:

1) Some represented persons no longer affiliated with MIT, but whose records had not yet been purged.

2) More students lived off campus than had been expected, and the budget had not accounted for so much additional postage. A random sample of these labels was pulled after the run.

3) Labels for persons living outside Massachusetts were pulled.

4) A few labels were garbled, incomplete, or obviously incorrect.

The questionnaires were mailed either by internal mail for campus addresses, or by first class mail for off-campus labels. A self-addressed internal mail envelope was included with all questionnaires going to on-campus personnel, and a stamped self-addressed envelope was included for off-campus users. Within four weeks of mailing, the response rate reached 21% (371 questionnaires). Table 3 presents the data for the 10% sample, the final mailing, and the response rate.

Status	10% Sample	Mailed	Returned	% Return
Faculty	123	114	43	38%
Research Staff	133	130	35	27%
Administrative Staff	92	89	31	35%
Academic Staff	25	21	4	19%
Support Staff	580	579	43	7%
Undergraduate Student	432	400	88	22%
Graduate Student	487	218	86	39%
Industrial Liaison Member	180	179	44	24%
Other			7	
Total		1730	381	22%

Table 3. Return Data

V. SURVEY RESULTS

Data analysis began after the verbatim extraction of responses to Q.11, which were passed on to library administration for their consideration. The statistical software package RS/1 Version 12.00 was used to produce frequency tables, to rank the responses to a number of individual questions, and to analyze relationships among certain of the variables. In the data presented below some of the questionnaire items are paraphrased for the sake of display. The symbol "N/A" is used to indicate "no answer".

V.A. Individual Items

V.A.1. Question 1: "What is your status?"

Graduate and undergraduate students accounted for almost one half of the responses. This was not surprising, as they had also represented slightly over one half of the mailing. Responses from members of the Industrial Liaison Program (12% of the total returns) were thought to be particularly valuable, as this

represents a likely dial access community.

	Count	Percent of Total
Faculty	43	11%
Research Staff	35	9%
Administrative Staff	31	8%
Academic Staff	4	1%
Support Staff	43	11%
Subtotal (Staff)	(156)	(41%)
Undergraduate	88	23%
Graduate	86	23%
Subtotal (Student)	(174)	(46%)
Industrial Liaison	44	12%
Other	7	2%
Subtotal (Other)	(51)	(13%)
Total	381	

Table 4. Status

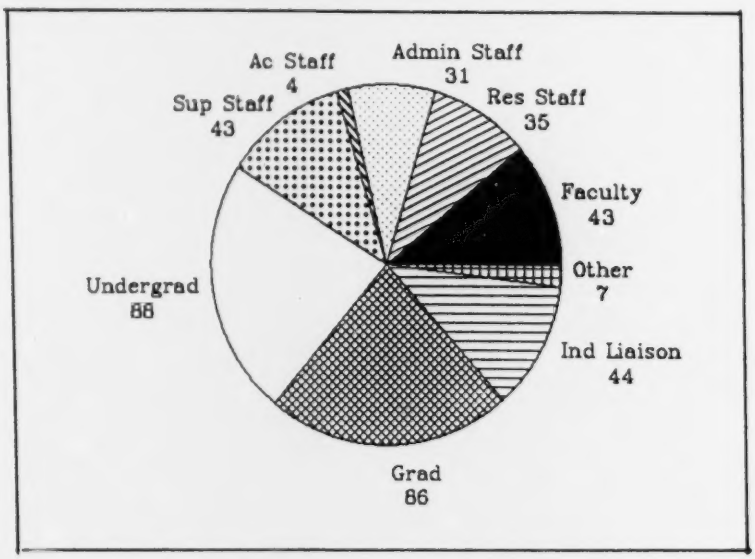


Figure 9. Status

V.A.2. Question 2: "Do you live on campus?"

The relative size of a potential dial access population is indicated by responses to this question, although the assumption

must be made that many of those who do not live on campus will still principally use campus facilities for access to library services. Nevertheless, the likelihood that microcomputers are to be found in the homes of MIT library users makes a case for addressing the needs of remote users of library information. It should be noted that roughly 75% of undergraduates and 30% of graduates live on campus, and that there are several MIT properties which are technically off-campus, but which are hard-wired to the campus network.

	Count	Percent of Total
Yes	122	32%
No	257	68%
N/A	2	0%

Table 5. Living on Campus

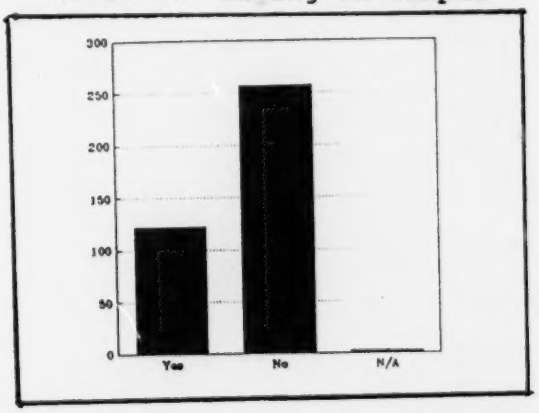


Figure 10. Living on Campus

V.A.3. Question 3: "How long have you been associated with MIT?"

Fractions of a year were rounded up to the next highest whole number when these data were being tabulated. In terms of familiarity with library services, fine distinctions beyond the

first four years were not felt to be necessary or useful, hence the grouping "5-9 years" and "10+ years". The spread among the different time categories is relatively even, which is to be expected given the stratified nature of the sample.

	Count	Percent of Total
1 year	54	14%
2 years	56	15%
3 years	62	16%
4 years	49	13%
5-9 years	69	18%
10+ years	82	22%
N/A	9	2%

Table 6. Length of Association with MIT

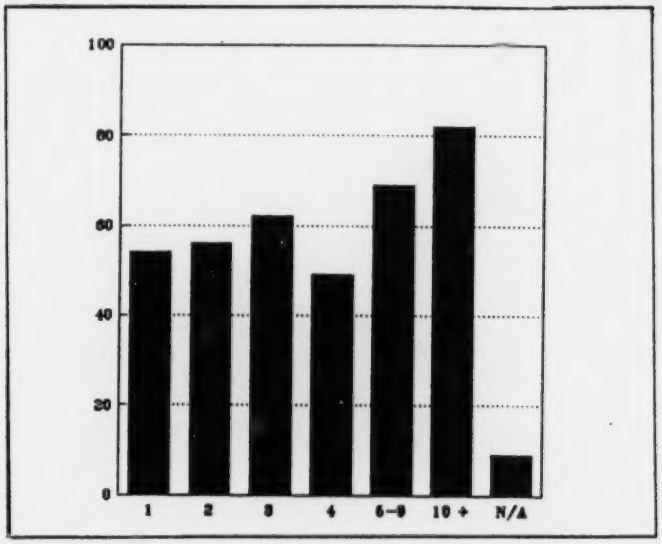


Figure 11. Length of Association with MIT

V.A.4. Question 4: "Do you currently use the MIT Libraries?"

90% of the respondents claimed to be current users of the MIT Libraries. Of course, there is the distinct possibility that those who do not use the library would be unlikely to have participated

in the survey.

Yes	345	90%
No	34	9%
N/A	2	1%

Table 7. MIT Libraries Users

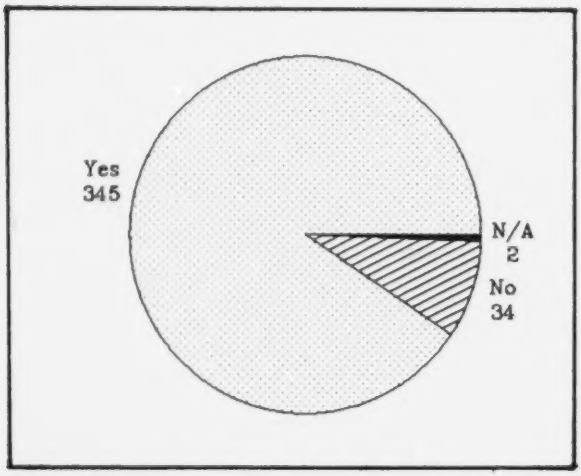


Figure 12. MIT Libraries User

V.A.5. Question 5: Use of library services "currently available on site in the Libraries."

and

Question 7: Use of library services which "could be made available through the Campus Network."

Tables 8 and 9 show the raw data gathered in response to Questions 5 and 7. Tables 10 and 11 shows the same lists, but in ranked order. The ranking is based on the sum of columns 1, 2 and 3 (indicating frequency of use of "several times a semester" or higher). In the case of a tie, the item with the greater value in column 1 (use "several times or more a week') was ranked higher.

Column 1 = several or more times a week
Column 2 = several times a month
Column 3 = several times a semester
Column 4 = rarely
Column 5 = never
Sum = sum of responses in columns 1, 2, and 3

	1	2	3	4	5	Sum
Use of catalog						
known item	35	92	154	52	11	281
whether item on shelf	31	72	126	54	40	229
browse	10	34	62	91	110	106
Use of reference services						
information search	16	45	101	96	64	162
ask for help	4	22	96	137	67	122
phone for help	2	7	37	95	174	46
e-mail for help	1	0	5	27	276	6
request online search	2	4	39	91	176	45
get book from storage	2	8	34	104	166	44
Use of circulation services						
check out an item	35	82	155	54	16	272
renew an item	19	52	111	79	64	182
place a hold	11	18	67	105	122	96
check out reserve item	13	19	59	99	128	91
Use of copying services						
photocopy	18	55	100	80	89	173
copy fiche	1	4	21	78	213	26
request fiche	1	2	8	64	244	11
request copying	1	2	9	55	251	12
Use of special collections						
theses	6	14	57	123	129	77
maps	0	4	22	75	218	26
documents	3	13	32	90	190	48
music	6	17	20	68	211	43
architectural drawings	0	2	7	28	282	9
Rotch Collection	2	2	10	38	266	14
Museum	3	0	5	36	275	8
Archives	2	1	8	55	256	11
Other						
inter-library loan	0	6	35	115	173	41
subject guides	0	1	4	40	272	5
purchase suggestions	0	4	22	73	224	26
non-MIT holdings lists	3	3	43	96	176	49
recent acquisitions lists	2	5	23	81	208	30
viewing audio-visual media	1	5	12	59	244	18

Table 8. Use of Library Services -- Without Gateway

Column 1 = several or more times a week
Column 2 = several times a month
Column 3 = several times a semester
Column 4 = rarely
Column 5 = never
Sum = sum of responses in columns 1, 2, and 3

	1	2	3	4	5	Sum
Use of catalog						
known item	41	126	113	57	19	280
whether item on shelf	36	116	107	63	28	259
browse	21	73	69	96	75	163
download	12	40	74	92	109	126
Use of reference services						
ask for help	5	35	82	154	61	122
request online search	8	37	90	132	76	135
get book from storage	4	25	58	147	99	87
search in-house databases	17	65	89	101	65	171
Use of circulation services						
renew an item	20	70	136	81	38	226
hold item on shelf	13	47	122	103	52	182
hold checked out item	11	44	109	116	59	164
Use of copy request services						
inter-library loan	2	22	76	136	94	100
request article copy	12	47	111	112	57	170
request fiche	3	17	42	141	125	62
Use of special listings						
maps	1	5	26	103	193	32
documents	5	18	52	106	158	75
music	5	17	36	77	196	78
architectural drawings	0	5	11	61	250	16
Rotch Collection	2	5	16	65	240	23
Museum	3	3	11	74	237	17
Archives	1	5	24	79	222	30
media collections	0	10	36	82	201	46
Other						
library hours	12	49	118	119	41	179
library descriptions	6	51	94	127	56	151
librarian specialties	3	29	72	132	92	104
library maps	3	15	62	108	135	80
subject guides	3	22	71	135	98	96
purchase suggestions	3	27	64	136	105	93
recent acquisitions lists	5	40	95	109	85	140
library tours	1	1	7	58	252	9
schedule rooms	1	5	16	68	233	22
research tutorials	0	6	26	90	203	32
search non-MIT catalogues	4	29	89	110	100	122

Table 9. Use of Library Services -- With Gateway

Column 1 = several or more times a week
Column 2 = several times a month
Column 3 = several times a semester
Sum = sum of responses in columns 1, 2, and 3

	Rank	Sum	1	2	3
known item catalogue search	1	281	35	92	154
check out an item	2	272	35	82	155
find out whether item on shelf	3	229	31	72	126
renew an item	4	182	19	52	111
use photocopy machines	5	173	18	55	100
information/reference search	6	162	16	45	101
ask librarian for help	7	122	4	22	96
browse in catalogue	8	106	10	34	62
place a hold on an item	9	96	11	18	67
check out reserve item	10	91	13	19	59
use theses	11	77	6	14	57
see non-MIT holdings lists	12	49	3	3	43
use government documents	13	48	3	13	32
phone librarian for help	14	46	2	7	37
request online search	15	45	2	4	39
get book from storage	16	44	2	8	34
use music materials	17	43	6	17	20
use inter-library loan	18	41	0	6	35
use acquisitions lists	19	30	2	5	23
use maps	20	26	0	4	22
suggest purchases	21	26	0	4	22
copy fiche	22	26	1	4	21
view audio-visual media	23	18	1	5	12
use Rotch Collection	24	14	2	2	10
request copying	25	12	1	2	9
use Archives	26	11	2	1	8
request fiche	27	11	1	2	8
use architectural drawings	28	9	0	2	7
use Museum	29	8	3	0	5
use e-mail to request help	30	6	1	0	5
use library's subject guides	31	5	0	1	4

Table 10. Ranked Use of Library Services -- Without Gateway

Questions 5 and 7 as printed in the instrument were worded so as to avoid library jargon as much as possible. For ease of display and analysis Tables 8 through 11 do not use the exact wording as found in the questionnaire.

Almost every item in both lists was noted in the "several times a semester" or a higher category by at least ten repondents.

Column 1 = several or more times a week
Column 2 = several times a month
Column 3 = several times a semester
Sum = sum of responses in columns 1, 2, and 3

	Rank	Sum	1	2	3
known item catalogue search	1	280	41	126	113
find out whether item on shelf	2	259	36	116	107
renew an item	3	226	20	70	136
hold item which is in library	4	182	13	47	122
find out library hours	5	179	12	49	118
search in-house databases	6	171	17	65	89
request article copy	7	170	12	47	111
hold item which is checked out	8	164	11	44	109
browse catalogue	9	163	21	73	69
see library descriptions	10	151	6	51	94
see acquisitions lists	11	140	5	40	95
request online search	12	135	8	37	90
create bibliography on disc	13	126	12	40	74
ask for help online	14	122	5	35	82
search non-MIT catalogues	15	122	4	29	89
see librarian specialty areas	16	104	3	29	72
inter-library loan	17	100	2	22	76
read subject guides	18	96	3	22	71
suggest items for purchase	19	93	3	27	64
request book from storage	20	87	4	25	58
see library maps	21	80	3	15	62
use listing of government documents	22	75	5	18	52
request fiche	23	62	3	17	42
use listing of music materials	24	78	5	17	36
use listing of media materials	25	46	0	10	36
use listing of map materials	26	32	1	5	26
use online research tutorials	27	32	0	6	26
use listing of Archives materials	28	30	1	5	24
use listing of Rotch materials	29	23	2	5	16
schedule rooms in library	30	22	1	5	16
use listing of Museum materials	31	17	3	3	11
use listing of architectural drawings	32	16	0	5	11
schedule library tours	33	9	1	1	7

Table 11. Ranked Use of Library Services -- With Gateway

Most of the items in the lower quarter of the list represent the use of specialized collections (the Museum, for example) or services (such as room booking) pertinent only to a small portion of the general academic community. Others might be construed as services whose availability is not widely known, or whose utility

has not yet been demonstrated (for instance, "online research tutorial"). The top quarter are predictably the classic array of basic library functions, of eminent practical use to any academic library patron.

V.A.6. Question 6: "What days and times are you most likely to use the MIT Libraries?"

and

Question 8: "...what days and times would you be most likely to access library services online?"

Questions 6 and 8 were concerned with the times of day in which subjects currently used MIT Libraries, and times of day in which they would be likely to use online library information services. The original grid as used on the questionnaire looked at 5 time periods (8:30-1 PM, 1-5 PM, 5-7 PM, 7-11 PM, and 11-8:30 AM) distributed across 4 "days" (Monday/Thursday, Friday, Saturday, and Sunday). This was felt to be an appropriate breakdown from the point of view of the library user community. Table 12 shows the raw data gathered for Questions 6 and 8 as presented in the questionnaire.

However, to provide information which would be more useful for library managers, a broader grouping was established as follows:

Weekdays (Monday - Friday, 8:30 AM - 5 PM)
Week evenings (Monday - Thursday, 5 - 11 PM)
Weekends (Friday, 5 - 11 PM; Saturday - Sunday, 8:30 AM - 11 PM)
Overnight (any day, 11 PM - 8:30 AM)

Table 13 shows the percentage of use for each of these categories, based on the totals in each cell of the original 4x5 matrix.

	8:30-1 PM	1-5 PM	5-7 PM	7-11 PM	11-8:30 AM
Mon-Thu	146	217	131	143	60
Fri	130	192	88	65	27
Sat	75	148	77	74	30
Sun	53	159	85	102	48

Without Gateway

	8:30-1 PM	1-5 PM	5-7 PM	7-11 PM	11-8:30 AM
Mon-Thu	165	208	129	197	93
Fri	153	200	103	113	57
Sat	80	154	89	108	57
Sun	70	153	100	149	79

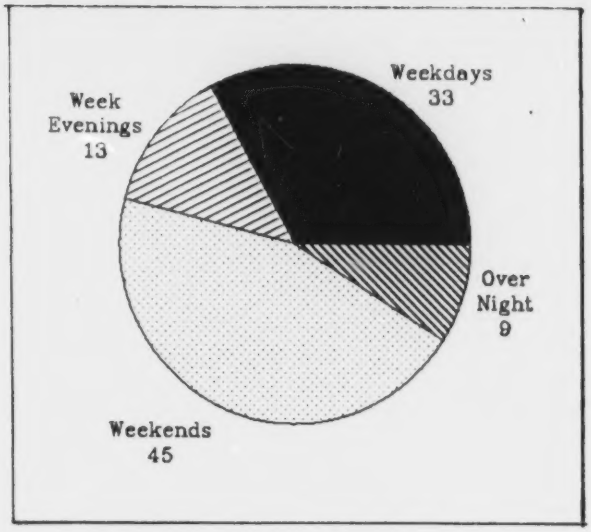
With Gateway

Table 12. Times of Use (a)

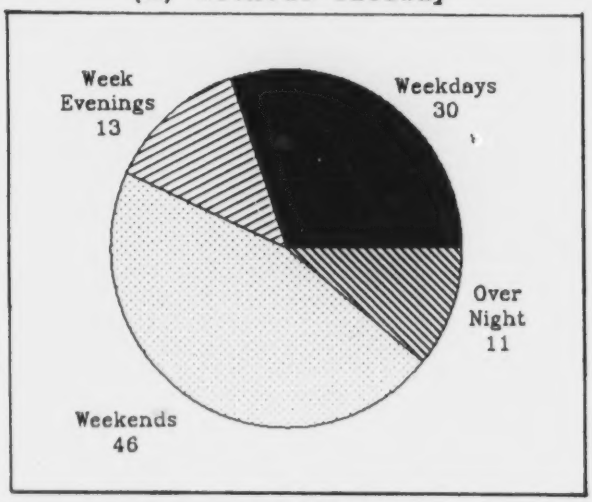
	Responses	Percent
Without Gateway		
Weekdays	685	33%
Week evenings	274	13%
Weekends	926	45%
Overnight	165	9%
Total	2050	
With Gateway		
Weekdays	726	30%
Week evenings	326	13%
Weekends	1119	46%
Overnight	286	11%
Total	2457	

Table 13. Times of Use (b)

The figures do not demonstrate a substantial expected difference in times of use with the introduction of a gateway. It remains to be seen whether respondents have really considered the potential of "from the home" access to library services, since the



(a) Without Gateway



(b) With Gateway

Figure 13. Times of Use -- Percentages

potential afforded by dial up capablities was not stated directly in those terms.

V.A.7. Question 9: "...how would you be most likely to gain access..." to online library services?

The question of dial up access, as noted above, does not

directly ask whether the gateway would be used from the home or other off-campus site. In fact, given the preponderance of positive responses to "personal computer", it is likely that this was taken by many respondents to mean the microcomputer in their office or dormitory room. As library systems are developed at MIT, it might be worthwhile to determine in more detail the location and the type of personal computers which the academic community uses for library services access. The issue was considered for this questionnaire, but it was felt that the instrument already demanded sufficient effort on the part of the respondent.

	Count*	% of Total (381)
would not use	21	6%
terminals in library	102	27%
terminals elsewhere on campus	116	30%
personal computer	172	45%
other	16	4%

* Many respondents checked several categories

Table 14. Methods of Access

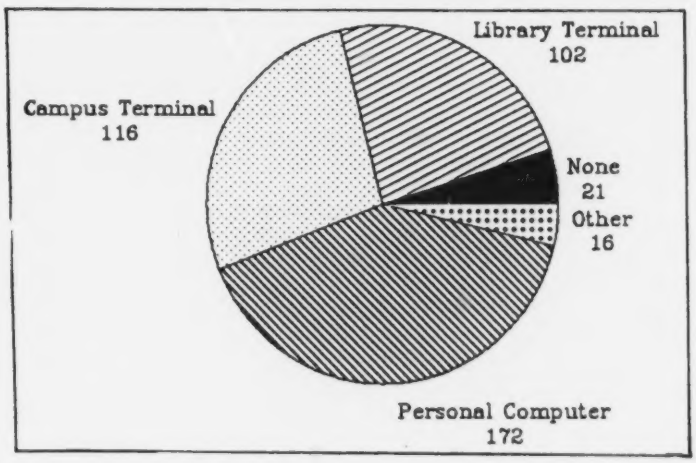


Figure 14. Methods of Access

V.A.8. Question 10: "How would you describe your satisfaction with library services at MIT?"

As mentioned earlier, this question and the open-ended Question 11 which follows it were provided as a forum for input and feedback to the MIT Libraries. While not directly concerned with the objectives of the study, the questions did not interfere with the data gathering process, and their inclusion elicited some information of use to library management.

	Count	% of Total (381)
very satisfied	81	21%
satisfied	185	49%
neither	85	22%
dissatisfied	19	5%
very dissatisfied	4	1%
N/A	7	2%

Table 15. Satisfaction with Library Services

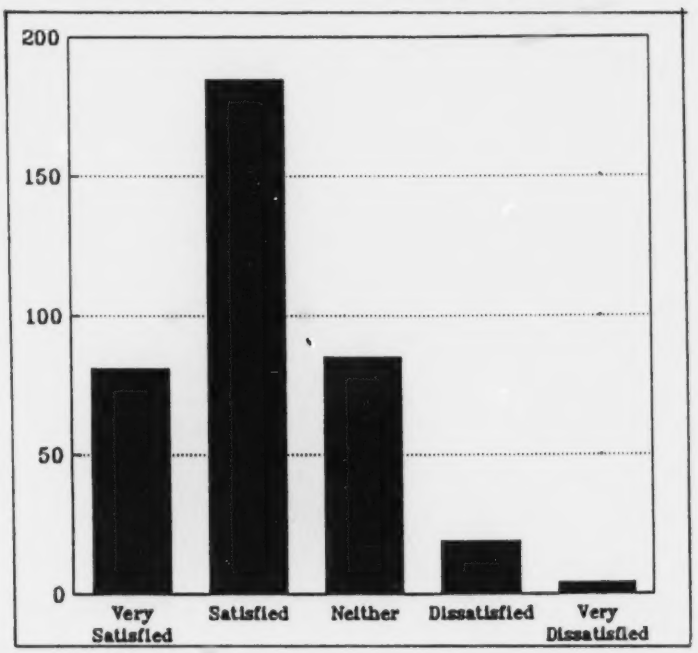


Figure 15. Satisfaction with Library Services

V.B. Relationships

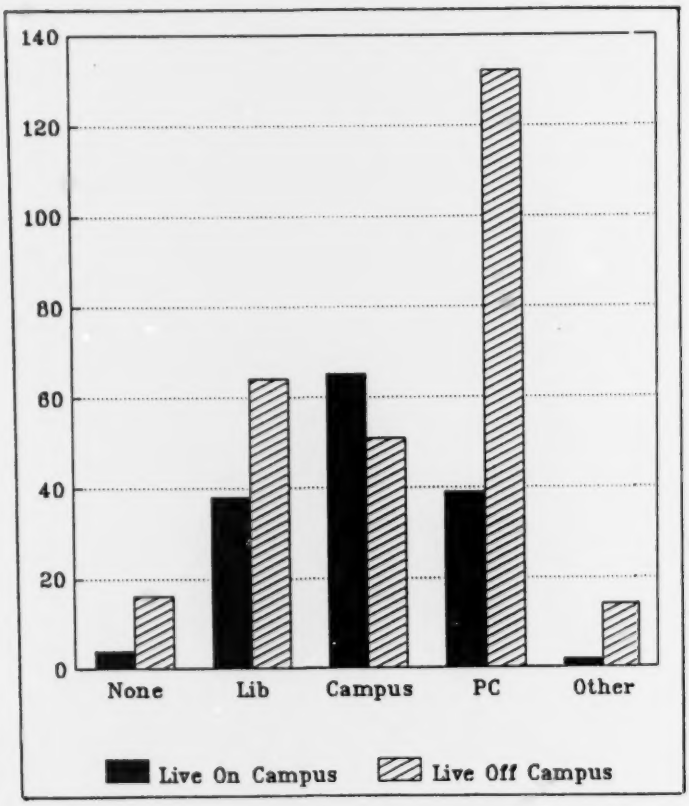
Further data analysis was needed in support of the design of the prototype gateway, and to gather information to be used in making recommendations for gateway implementation. Some simple comparisons between data sets were presented, and contingency tables were derived for further analysis in a number of cases. Chi square independence tests were used to investigate possible relationships. Since in most cases the contingency tables were larger than 2 x 2, Cramer's V was used in all tests of independence among the variables. In all cases hypotheses were tested at a significance level of 0.05%.

V.B.1. Method of Access

One of the questions expected to have impact on design and implementation of a gateway was the likely method of access. The data had already revealed that a high proportion of respondents expected to address library services via "personal computer". Owing to the lack of definition, and to the apposition of "personal computer" to phrases containing the word "terminal", no assumptions could be made as to the location, model or configuration of the "personal computers".

It was possible, at least, to investigate relationships between method of access and factors such as place of residence or status. Information such as this, based on client groups, might be helpful to library management in scheduling implementation of an online gateway, especially if considered in conjunction with data gathered on use of direct dial access to the online catalogue.

Figure 16 shows the methods of access compared for place of residence. It was not surprising to find that off-campus dwellers would be more likely to use personal computers, whether from offices on campus, or from the workplace (in the case of Industrial Liaison members), or from home. This expectation is borne out by the fact that students (the principal on-campus dwellers) are less likely to use personal computers than other methods for access to library services (Table 16).



None = would not use
Library = terminals in library
Campus = terminals elsewhere on campus
PC = personal computer

Figure 16. Place of Residence and Method of Access

	Graduate or Undergraduate	Other
Use of PC Indicated	35	134
Use of PC Not Indicated	99	100

Cramer's V = 0.3007 Degrees of freedom = 1

The null hypothesis that the variables are independent is rejected.

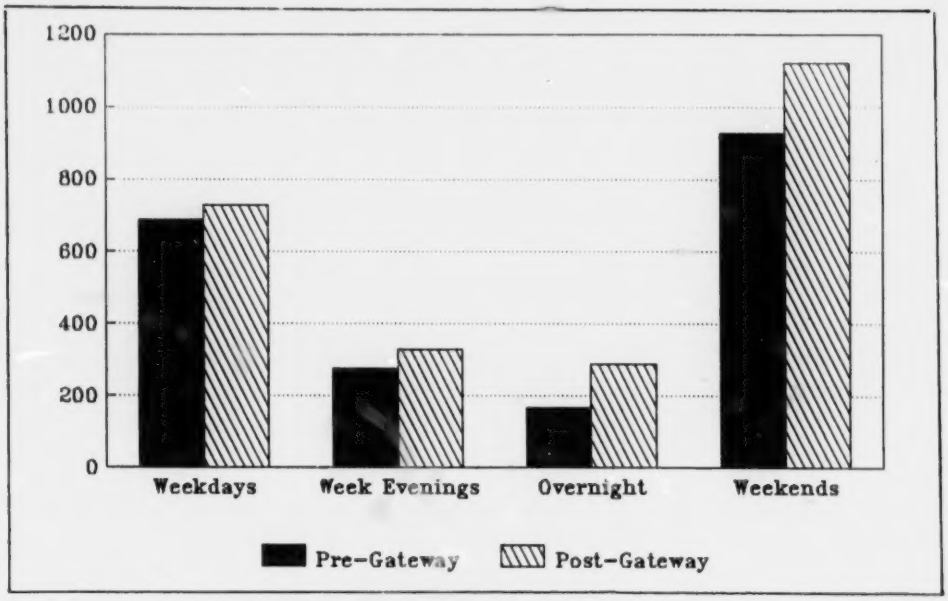
Data were only considered for those who indicated one or more responses to Question 9 (Method of Access).

Table 16. Test of Independence: Student Use of Personal Computers

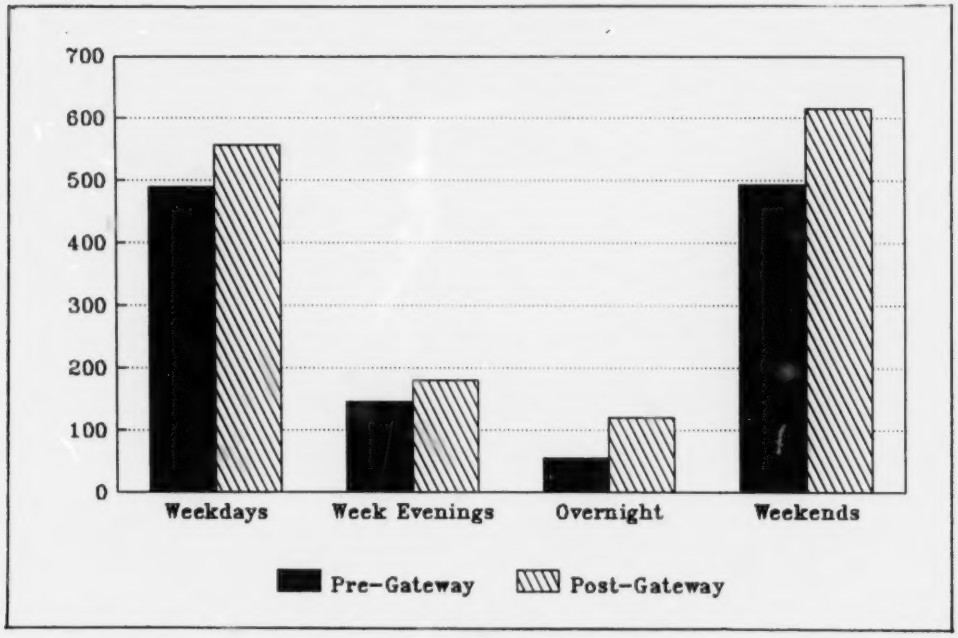
V.B.2. Times of Use

One might expect that the introduction of remote access would have an effect on times of use of library services. Figure 17 shows a comparison of the times of use as indicated in response to Questions 6 and 8. There appear to be only slight differences before and after the implementation of a gateway. In fact, if the four time periods derived for administrative purposes are studied in separate analyses, the only significant difference between pre- and post-gateway use is in the "Week Evenings" period. There are no significant differences in any time period if only off-campus dwellers are considered.

Tests were run to determine whether the times of use were likely to differ between off-campus dwellers and campus residents following the implementation of remote access. Figure 18 shows comparisons across the four time periods. In tests of each time period, significant differences were found in all cases except "overnight".



(a) Across All Users



(b) Off-Campus Dwellers

Weekdays (Monday - Friday, 8:30 AM - 5 PM)
Week evenings (Monday - Thursday, 5 - 11 PM)
Weekends (Friday, 5 - 11 PM; Saturday - Sunday, 8:30 AM - 11 PM)
Overnight (any day, 11 PM - 8:30 AM)

Figure 17. Times of Library Use -- Pre- and Post-Gateway

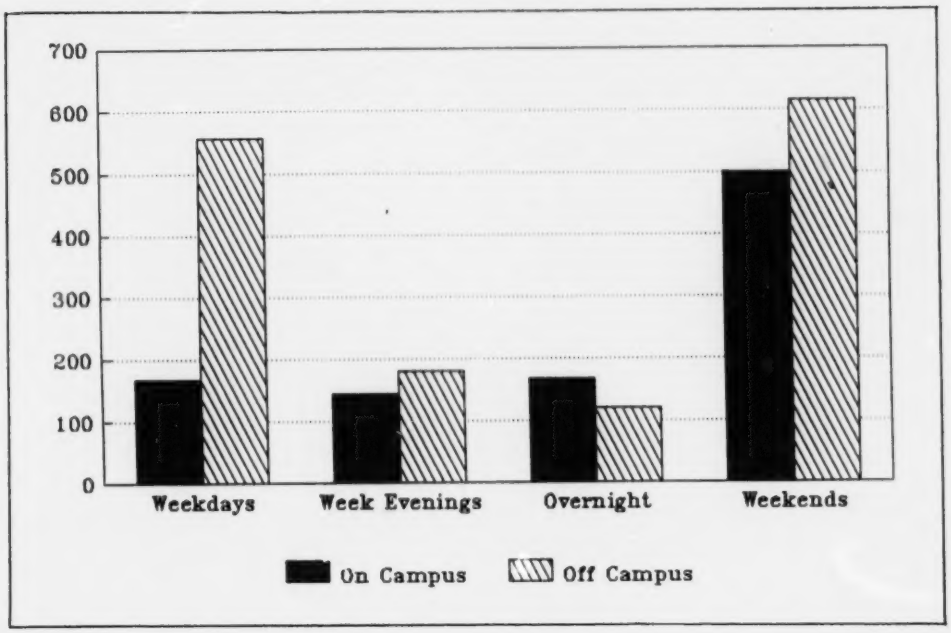


Figure 18. Post-Gateway Times of Use -- Off Campus Dwellers

V.B.3. Satisfaction with Library Services

Satisfaction with MIT library services was examined for its relationship to either length of association with MIT, or with status in the academic community. No significant relationship was found between satisfaction and length of association, but there did appear to be a relationship between status and satisfaction. In the construction of Table 17, the scores for "dissatisfied" and "very dissatisfied" were totaled. The values for status were designated as "students" (which included graduates and undergraduates), "faculty" (faculty and all other staff), and "other". Subsequent tests at individual status groups found a significant relationship between faculty and satisfaction, but none

between students (graduate or undergraduate) and satisfaction.

	Faculty	Students	Other
Very Satisfied	37	27	17
Satisfied	19	91	19
Neither	13	43	12
(Very) Dissatisfied	8	13	0

Cramer's V = 0.2526 Degrees of freedom = 6

The null hypothesis that the variables are independent is rejected.

Table 17. Satisfaction and Status

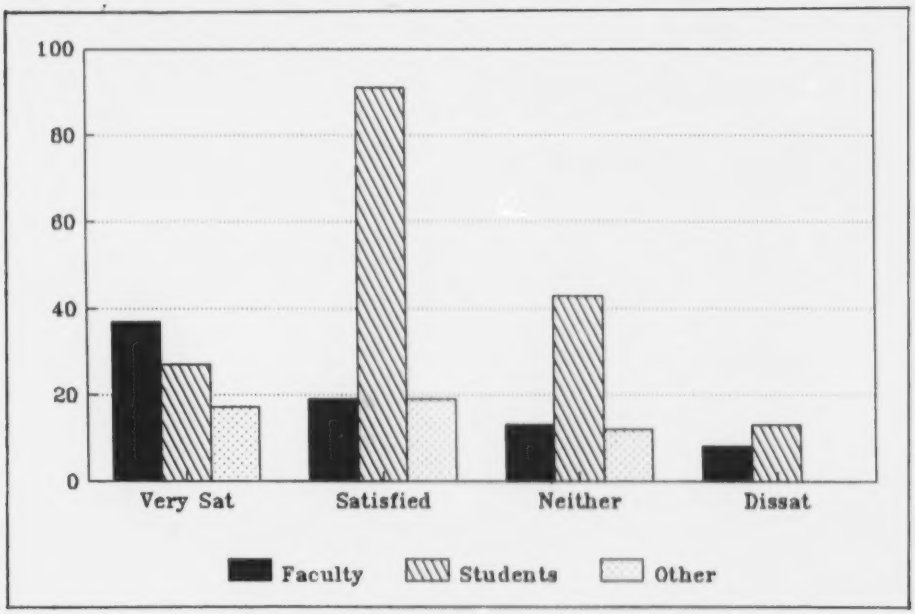


Figure 19. Satisfaction and Status

V.C. Conclusions

The users of MIT Libraries represent a diverse group, and they may be expected to access library services from many different locations, using various technological configurations. Their most

frequent uses of library services involve catalogue access and circulation activities (the top 4 items in either ranked list of library services). They would apparently welcome the opportunity to view library information online ("find out library hours" places fifth in Table 11, and "see library descriptions" ranks tenth).

Times of use of library services in the environment of an electronic gateway seem unlikely to change to any great degree, although there are indications that use by off-campus dwellers will increase slightly in many time periods. It appears that the library will still serve as a principal location for provision of services to students, and that the rest of the academic community will welcome the opportunity to use personal computers for access to library information.

VI. THE PROTOTYPE GATEWAY

VI.A. Design

Screen design for the prototype gateway was undertaken immediately following data analysis. A programmer was hired from among the senior undergraduate student body. He was asked to familiarize himself thoroughly with the MIT online catalogue before beginning, and to read several important texts on automated library systems (these included Crawford, 1987; Hildreth, 1982; Peters, 1985; and Williams, 1986). These texts stress the desirability of establishing a model which will be clear to users, and of staying within that model consistently. They emphasize the importance of clear and direct help given in simple positive statements. Guidelines regarding screen organization, command labels and

mnemonics, text display characteristics, and list presentation were taken into account as much as possible during gateway creation. The programmer was given explicit instructions at to screen content. Screens were continuously revised, taking questionnaire data into account when appropriate. Appendix B shows the entire screen set.

The prototype was written in C and was developed on Project Athena equipment, running under the UNIX operating system. Since the gateway would be interactive and the audience diverse, the programmer was instructed to avoid capabilities which would demand more than a monochrome monitor, keyboard input, and basic telecommunications software. It is true that many MIT users might have equipment fully capable of using windowing, mice, colour graphics, and other devices, but the purpose of this project is to address the entire client community in its <u>current</u> state. It is hoped that a sufficiently flexible interface design would allow for upgrades as attrition reduces the number of low end microcomputers being used to dial up library services. Even in the long term, the likely scenario for the future is that envisioned by Curtis (1988) in which library networks will have to accommodate a wide variety of microcomputers, mainframes, workstations, and local area networks.

The gateway consists of a number of separate modules addressable from the main menu (shown in Figure 20). Modules 1 and 2 provide access online files. Module 1 goes to Barton, the online catalogue. According to long-range plans, Barton will eventually include all special collections administered by MIT

Figure 20. Gateway Main Menu

Libraries, and so the gateway makes no attempt to address these independent of this environment. Module 2 allows for the possibility that MIT Libraries may mount commercially available data tapes in-house.

Module 3 leads the user to assorted items of library information. Users may request information about MIT Libraries in general, or specific libraries in particular. There are several routes to detailed displays of library times and floor maps. Users may see lists of library accessions, sorted in a variety of ways, and can examine a library bulletin board. Also in this section of the gateway is a path to the catalogues of area libraries, presuming that those links can be effected.

Module 4 presents a series of fill-in templates for various library activities, including requesting assistance, requesting an

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online search, suggesting a purchase, signing up for a tour, booking a room, using ILL, requesting a photocopy, and requesting a book from storage.

Module 5 allows the user to examine library pathfinders, or tutorials on research, bibliography preparation, and thesis formats.

Since the prototype is not in actual fact connected to any real library files, "dead end" screens present messages to the effect that a particular feature is unavailable at the time (or, in the case of floors in the library, "under renovation"). Much attention was given to providing the user with simple context-sensitive help screens, and with a continuously present "road map" showing the user's trail through the screen hierarchy. This last feature caused many problems during the programming process, but was felt to be vital.

From April through early June, 1989, one or both of the two principals and the programmer met to produce a final version of the prototype interface. The members of the team, working together in Athena clusters, were frequently online simultaneously. During this time, the two principals provided input to the programmer who made changes to the program as required.

VI.B. Evaluation

The prototype was tested against a small number of MIT students, as well a member of the MIT staff, an MIT faculty member, and a member of the Industrial Liaison Program. The goal was to review the gateway interaction, looking for inconsistencies,

errors, sources of confusion, unattractive screen layouts, and the like. In order to derive the maximum benefit, those selected to be a part of the reviews were screened to eliminate anyone who had an affiliation with the MIT Libraries other than that of a general user.

Each person selected was taken to an Athena cluster, given a short form that provided instructions as what type of feedback was desired, and was then left free to examine the prototype as he/she desired. The form provided space for written input; in addition, a principal was always available to answer questions and receive verbal input. The form is shown in Figure 21.

The input was collated and reviewed, and while it was consistently positive, there were a number of suggestions for changes/improvements. The following list of suggestions, comments and criticisms is classified into categories. Where appropriate, the point to which the comment pertains is indicated by reference to the number of the screen in Appendix B.

VI.B.1. Language

Screen 6 was criticized by a number of the subjects for jargon. It was felt that a one line scope note explaining the contents of each database would have been helpful. The phrase "electronic mail facility" (for instance, Screen 2) was thought not to be fully indicative of the range of services accessible through that section of the interface. The use of the word "template" in various of the electronic mail facility options was criticized for being too technical. It was suggested that a one

MIT LIBRARIES

GATEWAY INTERFACE PROJECT

READ ME FIRST

Thank you for agreeing to spend about 15 minutes helping us with this project. We have designed a model of the interface that you might see if you were to dial into the Libraries from the Campus Network.

What we like you to do is to attempt to go through as many of the functions as you can, looking for inconsistencies, errors, sources of confusion, unattractive screen layouts - in short, anything that you think might improve our product.

In going through the various screens, you wil note that many of the paths eventually lead to "No information is available", or a similar message. Please keep in mind that this is just a prototype.

Feel free to make any written comments below, as well as verbalizing anything you think is appropriate to Rich Hines, who will be with you during the process. Any verbal or written responses will be kept strictly confidential.

Thanks in advance for your help

-- Candy Schwartz and Rich Hines.

Figure 21. Prototype Evaluation Form.

line explanation, such as "...enter data as appropriate...", might replace the word "template" (as one example, see Screen 67). The word "pathfinder" (for instance, Screen 104), despite having been used by the MIT Libraries in bibliographic guides, was criticized by many as not being indicative of the service being offered.

VI.B.2. Help Screens

It was suggested that a phrase such as "...When using the system..." be added before the phrase "...type the number beside the desired menu item..." (see, for instance, Screen 3). A number of subjects were left with impression that they were supposed to type a number at the help screen, which was not the case. The comment was also made that a help screen should not only address the mechanics of moving from one screen to another, but should also provide assistance in understanding the content of screens.

VI.B.3 Input

It was noted that template screens do not allow for cursor action that would allow for correction of input. Instead, the request must be cancelled, the template screen must be recalled and data must be reentered. Also, a number of those testing the system suggested a change that would allow the user to go directly to an option after hitting a number, rather than hitting a number and then the return key.

VI.B.4. Omissions

The suggestion was made that campus building locations ought

to be included in all the screens providing information about the MIT Libraries (see for instance Screen 14).

VI.B.5. Screen Layout

The screen relating library times (Screen 38) was thought to need clarification to allow for more of a division between the three categories of times. The template screens were criticized for lacking an indication that "No" is the default choice after data entry. The maps (Screen 15) were felt not to contain sufficient details as to layout. It was suggested floor plans be scanned and entered, but this would be an unacceptable solution for those accessing the system without graphics capability.

VII. RECOMMENDATIONS

The results of this study, taken together with the MIT Libraries strategic plan and the increasing use of electronic information tools by libraries and library users clearly indicate that some form of electronic access to library services should be provided. The student community, through accounts on Project Athena, already has access at workstations to a wide array of textual and numeric data. It seems only appropriate that those workstations should open the gates to information services, information sources, and the skills and knowledge of the library's human resource -- information specialists.

There are several areas which must be addressed in order for a gateway to be set in place. These include the prototype, the information base provided by the library, and the need for

commitment of personnel to systems development.

VII.A. Prototype

The prototype presents a good model, and the program files are structured in a manner which should facilitate revision. If the prototype is not used as a basis for development, any other gateway should also be structured in a modular fashion, so that new functions may be added and obsolete ones deleted or revised without destroying the integrity of the program (Lewis, 1988).

If the prototype is adopted, then it must be fine-tuned. Some revisions are suggested immediately by the comments mentioned in Section VI. Others will depend on machine-readable conversion of some of the information resources made available by the library.

Following are some of the capabilities which, based partly on user responses to the questionnaire, should receive priority in implementation.

VII.A.1. Access to Files

The gateway prototype "faked" access to Barton and to other databases, or to items such as accessions lists. The first priority in gateway implementation must be to provide the link between the gateway and Barton. The greater the degree to which Barton incorporates special collections, the more valuable the gateway becomes. Less important immediately, but presenting another added value, would be a link to area libraries, most of which now offer dial access to their online catalogues.

VII.A.2. Data Capture

The gateway should facilitate data capture on disk or to printer, whether of entire files (such as tutorials), specific screens (such as request templates), or results of catalogue search. Furthermore, in the case of bibliographic citations, the gateway should promote transfer of records from library files to personal files (Weiskel, 1988). In the case of printing, users should have the option of printing large runs in some centralized location for later retrieval.

VII.A.3. Display

Templates should reflect, or improve upon, current library practice. Some of the functions represented by templates should also be made available during online search of Barton. The method of input to templates needs improvement. Gateway help screens also need attention. User comments indicate that they are deficient in both clarity and also in content.

VII.A.4. Additional Features

The gateway should have mechanisms for studying use and receiving feedback from users. On the feedback side, this would entail a point (or several) at which users could leave suggestions, comments, etc. From the point of view of systems evaluation, the gateway should incorporate a monitoring feature of some kind so that at least some aggregate data could be gathered as to use of screens, pathways followed, problems encountered in input, number of transactions of various kinds, and so on.

VII.B. Information Resources

In order for a gateway to provide information as to accessions lists, tutorials, guides to research, and so on, these items must be available in machine-readable form. In the case of accessions lists, they should be able to be sorted by a variety of features (main entry, call number, department, title, date of acquisition and so on).

The prototype did not develop detailed library information screens beyond those for the Barker Engineering Library. Obviously full information must be provided for all MIT libraries. This would include times, descriptions, floor maps, and so on. Similarly, if the gateway is to attempt to supply information on consortium libraries, then that information must be collected and converted.

VII.C. Human Resources

It is clear from the professional literature that libraries which wish to participate, and take leadership roles, in developing the "electronic campus" must be prepared to make a substantial commitment of human resources. Projects which have failed have largely done so because of the lack of that commitment.

The role of the library should be to serve as the information guide, in teamwork with users. Library staff should be involved in developing mechanisms to promote improved access to information services and systems. Such mechanisms are beginning to include, in many academic and public libraries, hypermedia applications and

many academic and public libraries, hypermedia applications and expert systems. This in turn suggests that library management must be committed to staff development.

On a more mundane level, someone has to be responsible for keeping electronic notice boards, accessions lists, tutorials, and so on, up to date. Someone must take on the task of analyzing transaction logs, answering suggestions and comments posted by users, and keeping an ear tuned to the needs of the academic community. Data processing staff will be needed to actually effect interaction between the gateway and the various systems it hopes to address, and to trouble shoot when necessary.

VII.D. MIT and the Future

Clearly the MIT Libraries have made a commitment to the future. The creation of a new professional position, Resources and Instruction Technology Librarian, and the material support of that person's continuing education, are both indicative of the importance placed on the development of new user systems. Support of the gateway project presents another indication of forward-looking library management.

The strategic plan presents a rational and well-paced series of steps, and the gateway project falls into place very well within that plan. Indeed, as the plan points out,

> "The availability of personal computers and campus networks will present both an opportunity and a challenge for libraries as faculty, research staff and students become more information literate and as their requirements for information and document delivery become more sophisticated." (Massachusetts Institute of Technology, 1988, p.7)

The MIT Libraries are positioned to meet that challenge.

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APPENDIX A

QUESTIONNAIRE

Massachusetts Institute of Technology
MIT Libraries

The MIT Libraries are in the process of deciding what services to provide to users via the Campus Network. We would be very appreciative if you would help us by anwering the questions on the enclosed survey. We need to know how you use the Libraries now, and how you might use them if you were able to access various library services electronically.

Answering the survey will take only a few minutes. Simply check boxes as appropriate. The last question allows you to address areas of concern to you that were not covered elsewhere in the survey. Please return the completed survey through MIT internal mail, in the enclosed self-addressed envelope by **Monday, April 18.** [* If you are an external user of the MIT Libraries, a self-addressed stamped envelope has been supplied for your convenience]

PRIVACY NOTICE. All the information gathered from the survey will be for general statistical purposes only. We want to protect your anonymity. Please skip any question if you feel that it will compromise your identity.

Thanks in advance for your help!

Richard W. Hines
Assistant Engineering Librarian

Library Services Survey

Question 1: What is your status: (CHECK ONE and fill in the blank as appropriate)

[ ] Faculty
[ ] Research Staff
[ ] Administrative Staff
[ ] Academic Staff
[ ] Support Staff

Your Department/Office: _____

[ ] Undergraduate Student
[ ] Graduate Student

Your Course: _____

[ ] Industrial Liaison Program Member
[ ] Other

Question 2: Do you live on campus? (CHECK ONE)

[ ] Yes [ ] No

Question 3: How long have you been associated with MIT? _____ years

Question 4: Do you currently use the MIT Libraries? (CHECK ONE)

[ ] Yes [ ] No (If your answer to Question 4 is NO, please skip to Question 7)

Question 5: The following services are currently available on site in the Libraries. Please indicate how frequently you use each of these services during the semester. (CHECK ONE BOX IN EACH ROW)

	several or more times a week	several times a month	several times a semester	rarely	never
I use the card catalog or the online catalog					
to find a particular item	[ ]	[ ]	[ ]	[ ]	[ ]
to find out whether a particular item is on the shelves	[ ]	[ ]	[ ]	[ ]	[ ]
to browse	[ ]	[ ]	[ ]	[ ]	[ ]
I use reference services and reference collections					
to search the reference collection myself	[ ]	[ ]	[ ]	[ ]	[ ]
to ask a librarian for assistance in person	[ ]	[ ]	[ ]	[ ]	[ ]
to ask a librarian for assistance over the phone	[ ]	[ ]	[ ]	[ ]	[ ]
to ask a librarian for assistance via electronic mail	[ ]	[ ]	[ ]	[ ]	[ ]
to request a computer search	[ ]	[ ]	[ ]	[ ]	[ ]
to request a book from storage	[ ]	[ ]	[ ]	[ ]	[ ]
I use circulation services					
to take out a book	[ ]	[ ]	[ ]	[ ]	[ ]
to renew a book I have out	[ ]	[ ]	[ ]	[ ]	[ ]
to put a hold on a book someone else has out	[ ]	[ ]	[ ]	[ ]	[ ]
to take out a reserve book	[ ]	[ ]	[ ]	[ ]	[ ]
I use library copying services and machines					
to do my own photocopying	[ ]	[ ]	[ ]	[ ]	[ ]
to make my own paper copy from a microfiche	[ ]	[ ]	[ ]	[ ]	[ ]
to request microfiche copying from the library	[ ]	[ ]	[ ]	[ ]	[ ]
to request copying from the Microreproduction Lab	[ ]	[ ]	[ ]	[ ]	[ ]
I use the following special collections or materials					
theses and dissertations	[ ]	[ ]	[ ]	[ ]	[ ]
maps	[ ]	[ ]	[ ]	[ ]	[ ]
government documents	[ ]	[ ]	[ ]	[ ]	[ ]
musical recordings and scores	[ ]	[ ]	[ ]	[ ]	[ ]
architectural drawings	[ ]	[ ]	[ ]	[ ]	[ ]
the Rotch Visual Collection	[ ]	[ ]	[ ]	[ ]	[ ]
the MIT Museum collections	[ ]	[ ]	[ ]	[ ]	[ ]
the Institute Archives	[ ]	[ ]	[ ]	[ ]	[ ]
I use other library services					
to borrow a book from another (non MIT) library	[ ]	[ ]	[ ]	[ ]	[ ]
to request special subject guides prepared by library staff	[ ]	[ ]	[ ]	[ ]	[ ]
to suggest books for purchase	[ ]	[ ]	[ ]	[ ]	[ ]
to see a list of journals held by other local libraries	[ ]	[ ]	[ ]	[ ]	[ ]
to see a list of recent additions to the library collections	[ ]	[ ]	[ ]	[ ]	[ ]
to view audiovisual media (for instance, course tapes)	[ ]	[ ]	[ ]	[ ]	[ ]

Question 6: What days and times are you most likely to use the MIT Libraries? (CHECK AS MANY AS APPLY)

	8:30am-1:00pm	1:00pm-5:00pm	5:00pm-7:00pm	7:00pm-11:00pm	11:00pm-8:30am
Mondays-Thursdays	[ ]	[ ]	[ ]	[ ]	[ ]
Fridays	[ ]	[ ]	[ ]	[ ]	[ ]
Saturdays	[ ]	[ ]	[ ]	[ ]	[ ]
Sundays	[ ]	[ ]	[ ]	[ ]	[ ]

Question 7: The following services could be made available electronically through the Campus Network. Please indicate how frequently you would use each during the semester. (CHECK ONE BOX IN EACH ROW)

	several or more times a week	several times a month	several times a semester	rarely	never
I would search the catalog online					
to find a particular item	[ ]	[ ]	[ ]	[ ]	[ ]
to find out whether a particular item is on the shelves	[ ]	[ ]	[ ]	[ ]	[ ]
to browse	[ ]	[ ]	[ ]	[ ]	[ ]
to create my own bibliography on disc	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online reference services					
to request assistance from a librarian	[ ]	[ ]	[ ]	[ ]	[ ]
to request a computer search	[ ]	[ ]	[ ]	[ ]	[ ]
to request a book from storage	[ ]	[ ]	[ ]	[ ]	[ ]
to search computer databases myself	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online circulation services					
to renew a book I have out	[ ]	[ ]	[ ]	[ ]	[ ]
to put a hold on a book that is on the shelves	[ ]	[ ]	[ ]	[ ]	[ ]
to put a hold on a book someone else has out	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online copy request services					
to borrow a book from another (non MIT) library	[ ]	[ ]	[ ]	[ ]	[ ]
to request a photocopy of a journal article or other paper	[ ]	[ ]	[ ]	[ ]	[ ]
to request a microfiche copy of a thesis or other paper	[ ]	[ ]	[ ]	[ ]	[ ]
I would search the following special listings online					
maps	[ ]	[ ]	[ ]	[ ]	[ ]
government documents	[ ]	[ ]	[ ]	[ ]	[ ]
musical recordings and scores	[ ]	[ ]	[ ]	[ ]	[ ]
architectural drawings	[ ]	[ ]	[ ]	[ ]	[ ]
the Rotch Visual Collection	[ ]	[ ]	[ ]	[ ]	[ ]
the MIT Museum collections	[ ]	[ ]	[ ]	[ ]	[ ]
the Institute Archives	[ ]	[ ]	[ ]	[ ]	[ ]
audiovisual media collections (for instance, course tapes)	[ ]	[ ]	[ ]	[ ]	[ ]
I would use online library services					
for a list of library hours	[ ]	[ ]	[ ]	[ ]	[ ]
for a description of subject areas of specific MIT libraries	[ ]	[ ]	[ ]	[ ]	[ ]
for a list of subject specialities of MIT librarians	[ ]	[ ]	[ ]	[ ]	[ ]
for maps of specific MIT libraries	[ ]	[ ]	[ ]	[ ]	[ ]
to look at subject guides prepared by library staff	[ ]	[ ]	[ ]	[ ]	[ ]
to suggest books for purchase	[ ]	[ ]	[ ]	[ ]	[ ]
to see recent additions to the library collections	[ ]	[ ]	[ ]	[ ]	[ ]
to schedule tours of MIT libraries	[ ]	[ ]	[ ]	[ ]	[ ]
to schedule library conference rooms	[ ]	[ ]	[ ]	[ ]	[ ]
for tutorials on doing research in the library	[ ]	[ ]	[ ]	[ ]	[ ]
to search catalogs of other local libraries	[ ]	[ ]	[ ]	[ ]	[ ]

Question 8: With 24 hour access, what days and times would you be most likely to access library services online? (CHECK AS MANY AS APPLY)

	8:30am-1:00pm	1:00pm-5:00pm	5:00pm-7:00pm	7:00pm-11:00pm	11:00pm-8:30am
Mondays-Thursdays	[ ]	[ ]	[ ]	[ ]	[ ]
Fridays	[ ]	[ ]	[ ]	[ ]	[ ]
Saturdays	[ ]	[ ]	[ ]	[ ]	[ ]
Sundays	[ ]	[ ]	[ ]	[ ]	[ ]

Question 9: When library services are made available online through the Campus Network, how would you be most likely to gain access to them? (CHECK ONE)

[ ] I would not access library services online
[ ] I would use terminals in the libraries
[ ] I would terminals on campus not in the libraries
[ ] I would use my personal computer
[ ] Other (please indicate: _____)

Question 10: How would you describe your satisfaction with library services at MIT? (CHECK ONE)

[ ] Very satisfied
[ ] Satisfied
[ ] Neither satisfied nor dissatisfied
[ ] Dissatisfied
[ ] Very dissatisfied

Question 11:

Use this space to address areas of concern or interest which were not included in the survey. Are there additional services which you feel the Libraries could provide, or cases where improvements could be made to existing services?

_____

_____

_____

_____

_____

Thank you for your time.

If you do not have the self-addressed envelope which was enclosed, please return the completed survey to:

Richard W. Hines
Barker Engineering Library
Massachusetts Institute of Technology, Room 10-500
Cambridge MA 02139

Volunteers needed:

Beginning in September 1988, we will be testing a prototype online interface. If you would be willing to participate in this test please call Rich Hines, at 253-6051 or 253-6041.

APPENDIX B

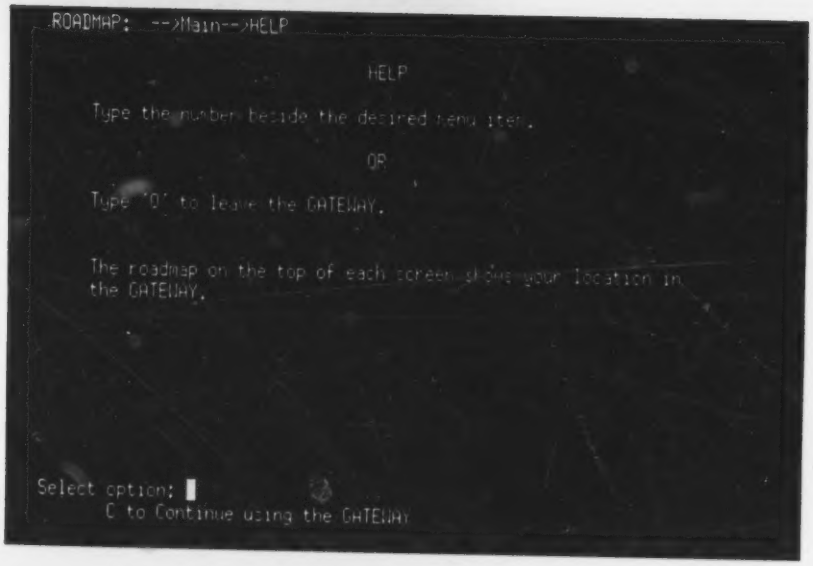
SCREENS

Welcome to GATEWAY
GATEWAY is an interactive, menu-driven program whose function is to provide a wide variety of library help services.
Please wait a few seconds ...

Screen 1

BEST COPY AVAILABLE

Screen 2


ROADMAP: -->Main-->HELP
HELP
Type the number beside the desired menu item.
OR
Type 'Q' to leave the GATEWAY.
The roadmap on the top of each screen shows your location in the GATEWAY.
Select option:
C to Continue using the GATEWAY

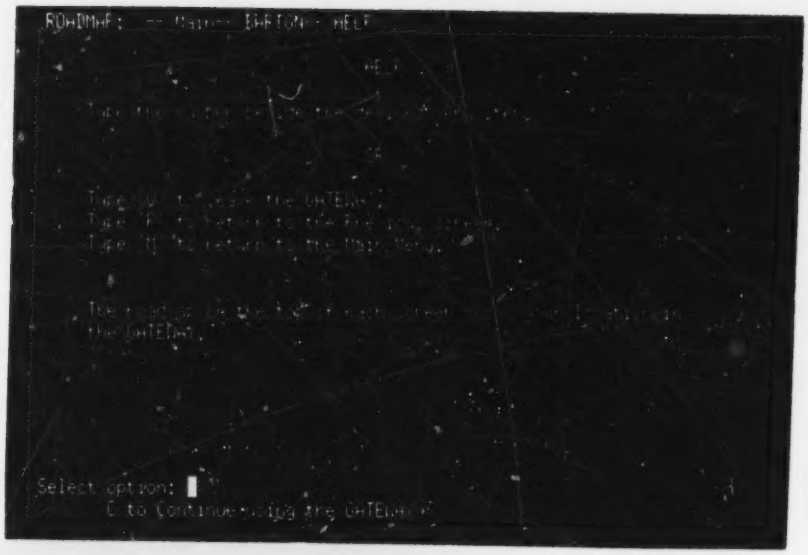
Screen 3

ROADMAP: -->Main-->BARTON
ENTERING BARTON
Please wait while the database is mounted...
Sorry, Unable to access BARTON at this time.
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 4

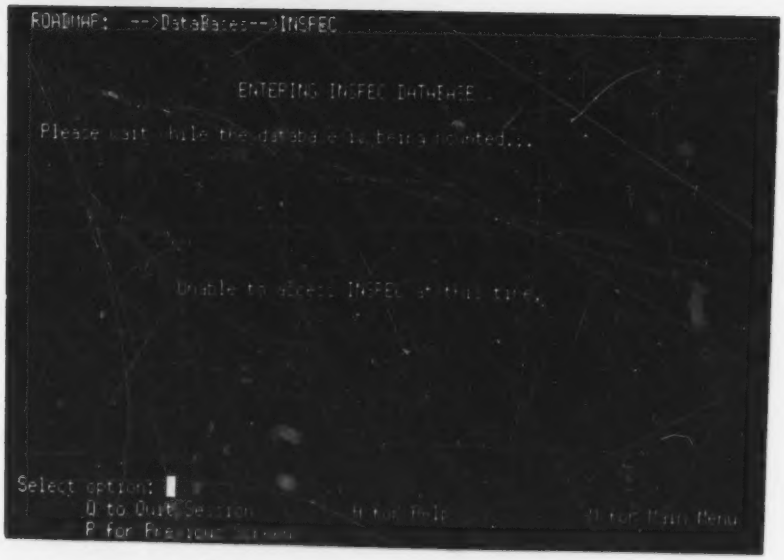
BEST COPY AVAILABLE

Screen 5



Screen 6

Screen 7



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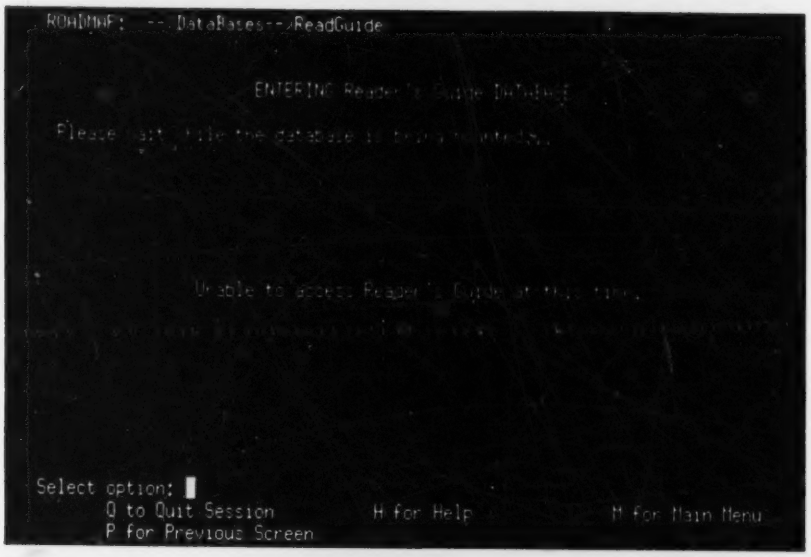
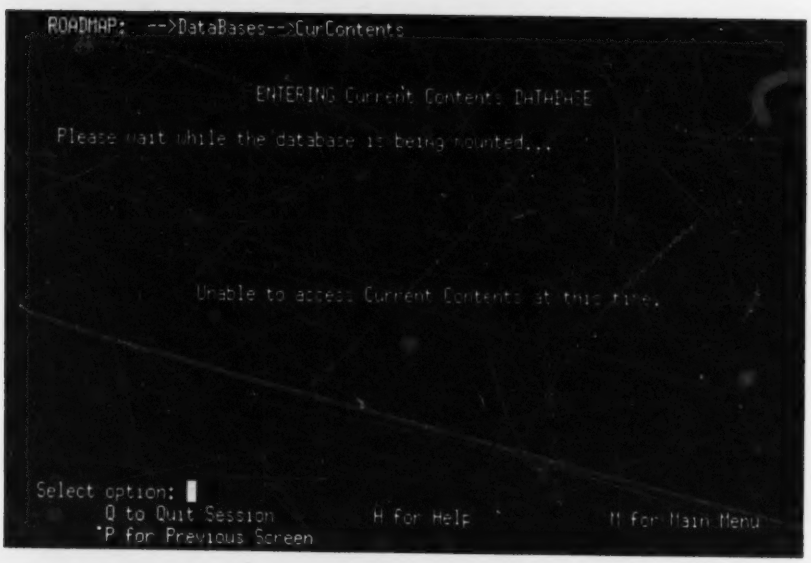
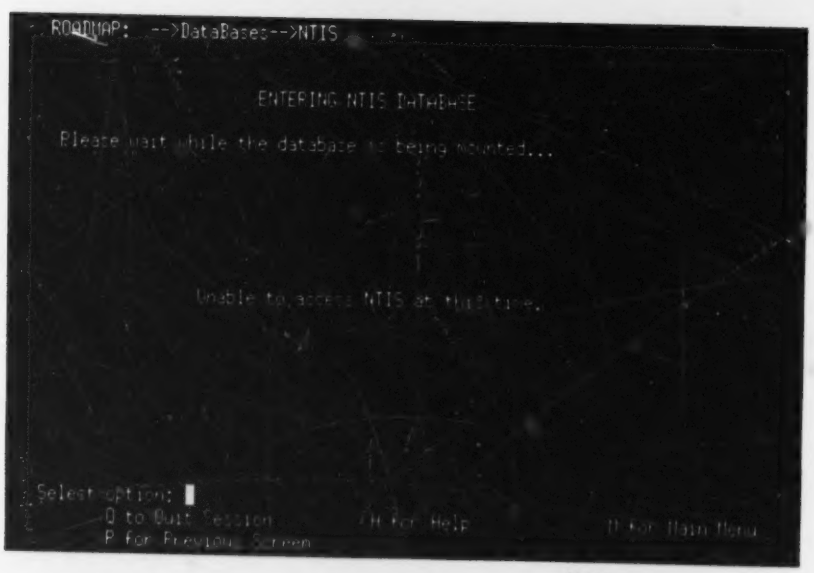

ROADMAP: --> DataBases-->ReadGuide
Unable to access Reader's Guide at this time.
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 8


ROADMAP: -->DataBases-->CurContents
ENTERING Current Contents DATABASE
Please wait while the database is being mounted...
Unable to access Current Contents at this time.
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 9


ROADMAP: -->DataBases-->NTIS
ENTERING NTIS DATABASE
Please wait while the database is being mounted...
Unable to access NTIS at this time.
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 10

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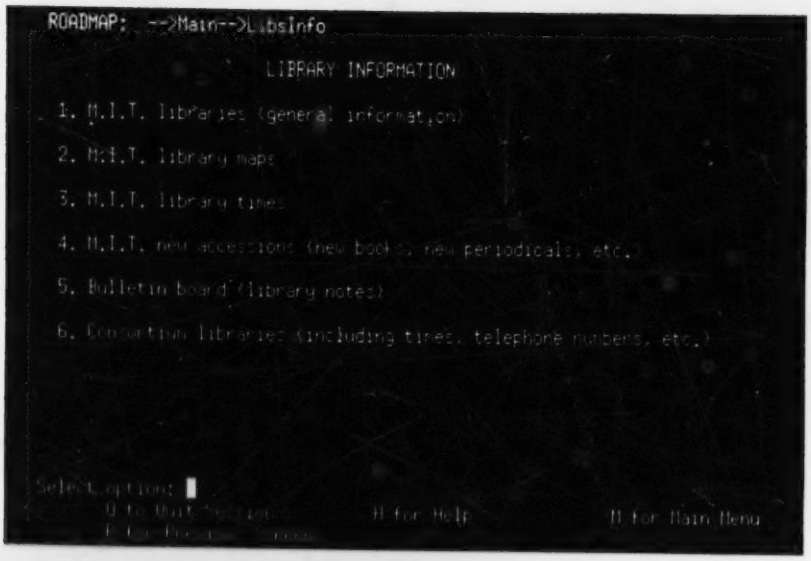
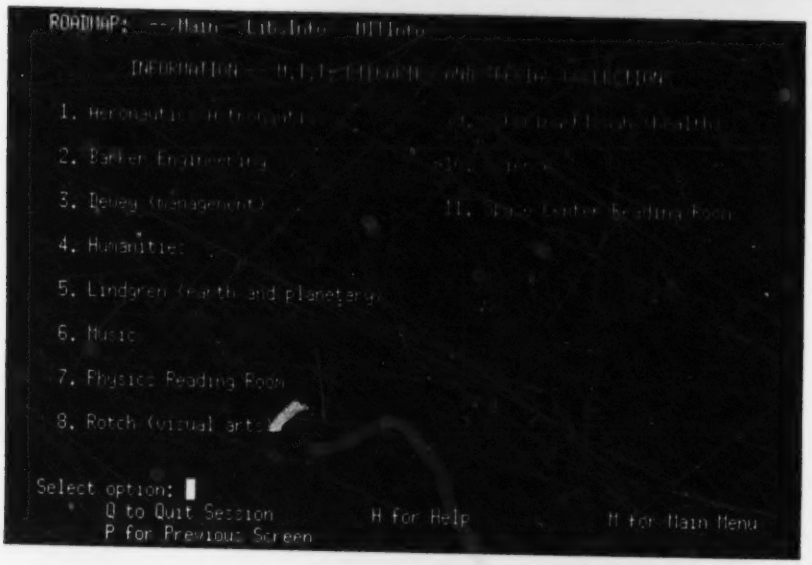
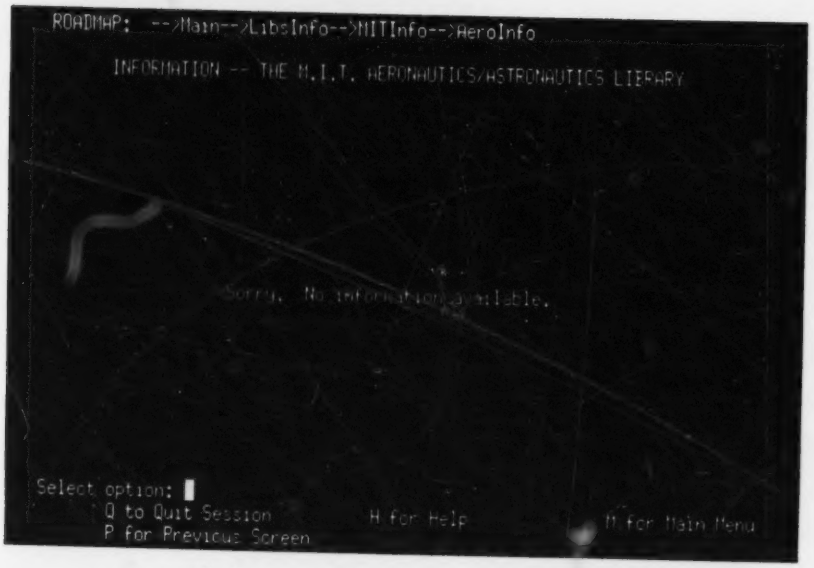
Screen 11


ROADMAP: -->Main-->LibsInfo
LIBRARY INFORMATION
1. M.I.T. libraries (general information)
2. M.I.T. library maps
3. M.I.T. library times
4. M.I.T. new accessions (new books, new periodicals, etc.)
5. Bulletin board (library notes)
6. Consortium libraries (including times, telephone numbers, etc.)
Select option:
Q to Quit Session
H for Help
M for Main Menu

Screen 12



Screen 13



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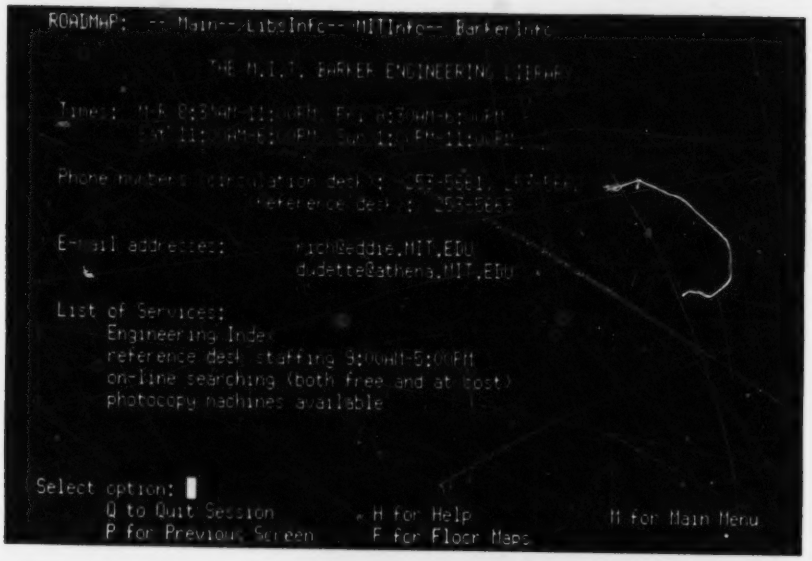
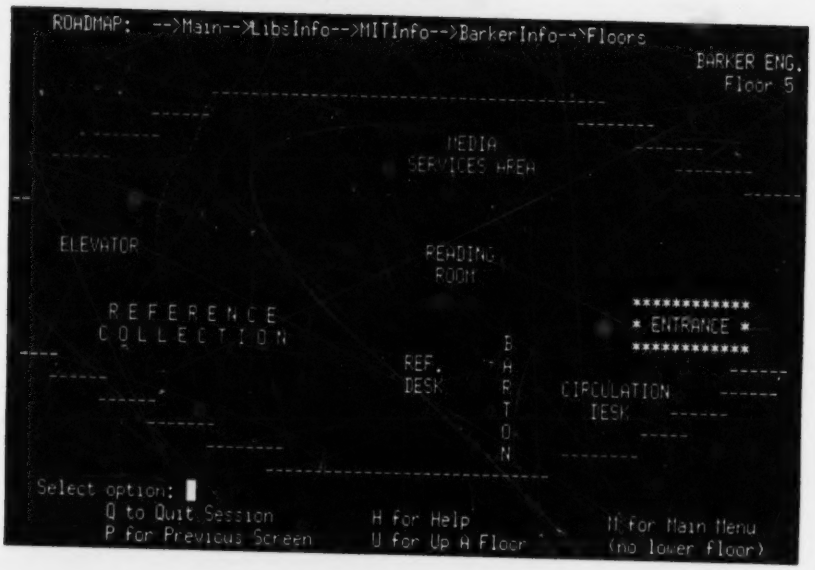
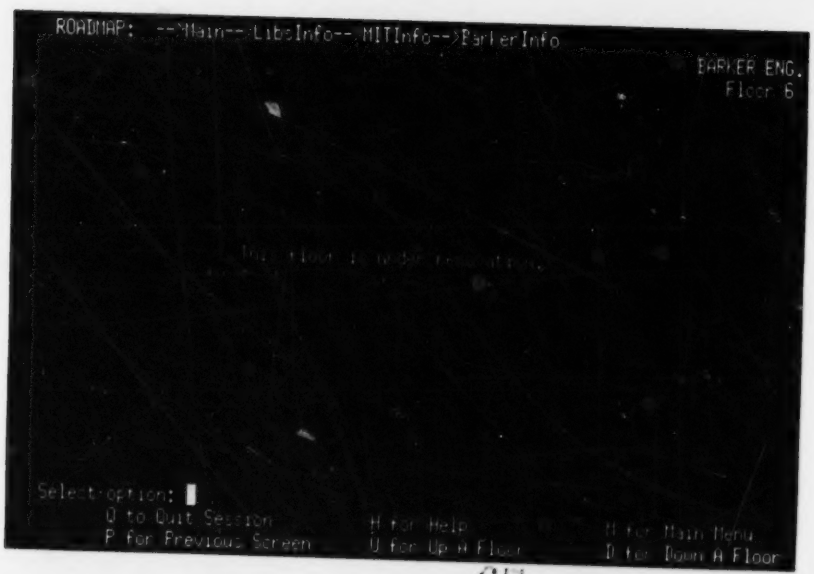


Screen 14

Screen 15



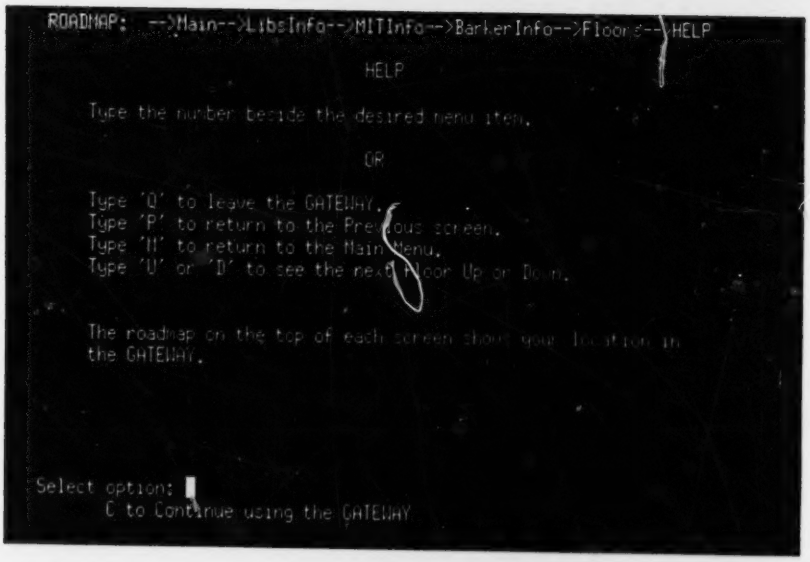


Screen 16

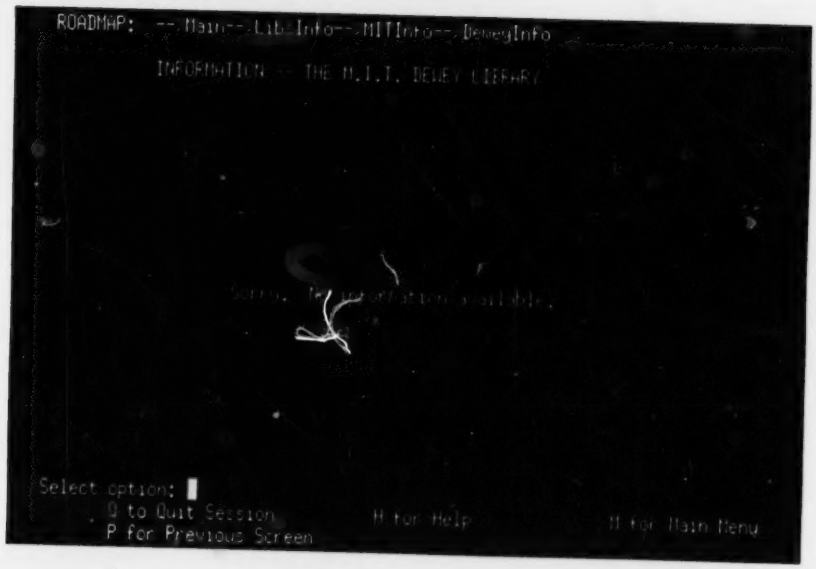
BEST COPY AVAILABLE

Screen 17

Screen 18


ROADMAP: -->Main-->LibsInfo-->MITInfo-->BarkerInfo-->Floors-->HELP
HELP
Type the number beside the desired menu item.
OR
Type 'Q' to leave the GATEWAY.
Type 'P' to return to the Previous screen.
Type 'M' to return to the Main Menu.
Type 'U' or 'D' to see the next floor Up or Down.
The roadmap on the top of each screen shows your location in the GATEWAY.
Select option:
C to Continue using the GATEWAY

Screen 19



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Screen 20

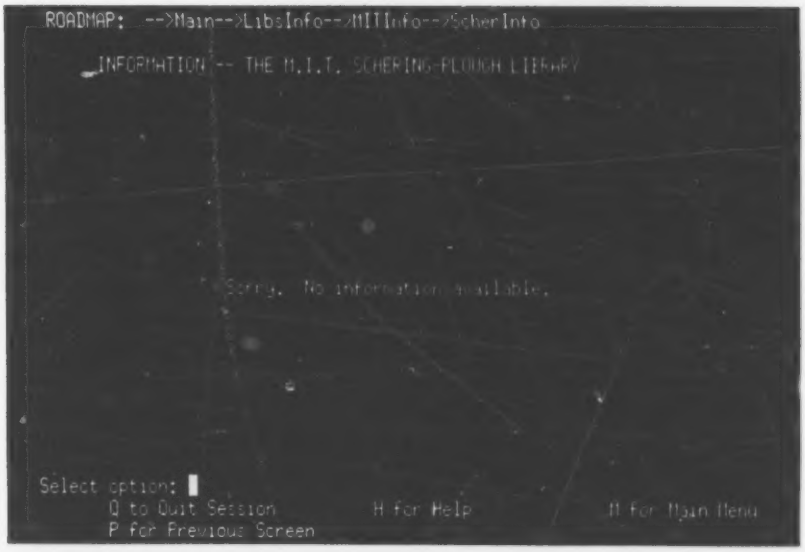
Screen 21

Screen 22

BEST COPY AVAILABLE

Screen 23

Screen 24



Screen 24a

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Screen 25

Screen 26

Screen 27

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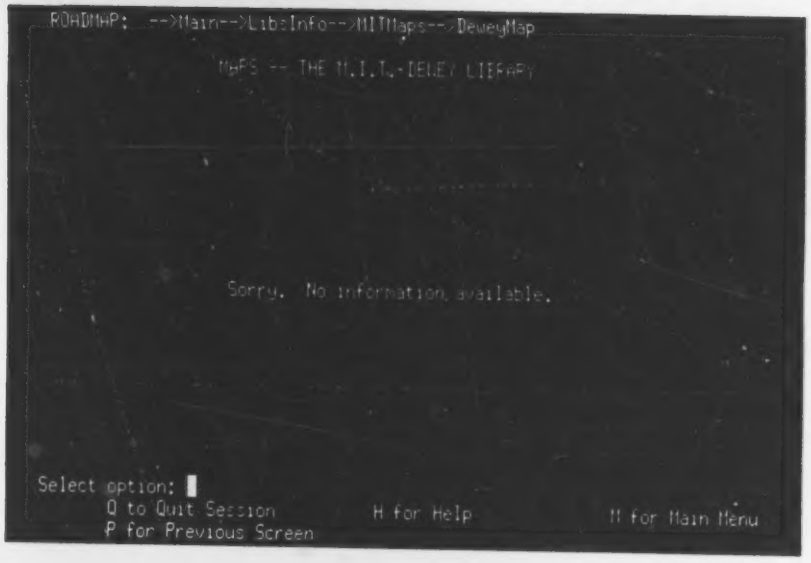
Screen 28



Screen 29

Screen 30

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ROADMAP: --Main-- LibsInfo-- MITMaps-- LindyMap
MAPS -- THE M.I.T. LINDY PEN LIBRARY
Sorry, No information available.
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 31

Screen 32

ROADMAP: --Main-- LibsInfo-- MITMaps--PhysRMap
MAPS -- THE M.I.T. PHYSICS READING ROOM
Sorry, No information available.
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 33

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Screen 34

Screen 35

Screen 36

BEST COPY AVAILABLE

```
ROADMAP:  -->Main-->LibsInfo-->MITMaps-->SpaceAccs

          MAPS -- THE M.I.T. SPACE CENTER READING ROOM



                    Sorry.  No information available.



Select option:
      Q to Quit Session          H for Help          M for Main Menu
      P for Previous Screen
```

Screen 37

```
ROADMAP:  -->Main-->LibsInfo-->MITTimes

                TIMES OF SERVICE FOR M.I.T. LIBRARIES

Aero/Astro
Dewey
Barker Eng.    M-R 8:30AM-11PM, F 8:30AM-7PM, Sat 10AM-6PM, Sun 1PM-11PM
Humanities
Science

Music
Rotch          M-R 8:30AM-11PM, F 8:30AM-7PM, Sat 10AM-6PM
Lindgren

Schering-Plough
Physics Reading Room      M-R 8:30AM-11PM, F 8:30AM-7PM, Sat 10AM-6PM
Space Center Reading Room



Select option:
      Q to Quit Session          H for Help          M for Main Menu
      P for Previous Screen
```

Screen 38

```
ROADMAP:  -->LibsInfo-->MITAccs

          ACCESSIONS -- M.I.T. LIBRARIES

 1. Aeronautics/Astronautics          9. Schering-Plough (health)
 2. Barker Engineering               10. Science
 3. Dewey (management)               11. Space Center Reading Room
 4. Humanities
 5. Lindgren (earth and planetary)
 6. Music
 7. Physics Reading Room
 8. Rotch (visual arts)

Select option:
      Q to Quit Session          H for Help          M for Main Menu
      P for Previous Screen
```

Screen 39

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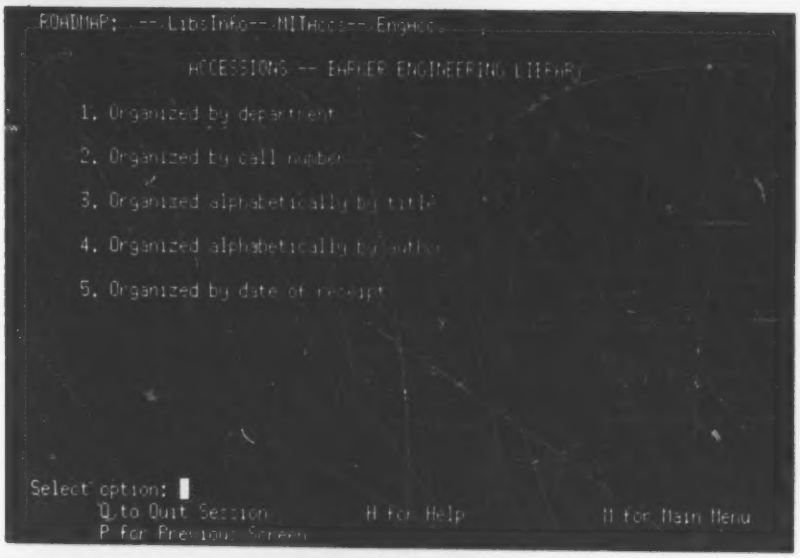
Screen 40


ROADMAP: -->LibsInfo-->MITAccs-->EngAccs
ACCESSIONS -- ENGINEERING LIBRARY
1. Organized by department
2. Organized by call number
3. Organized alphabetically by title
4. Organized alphabetically by author
5. Organized by date of receipt
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 41

Screen 42

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Screen 43

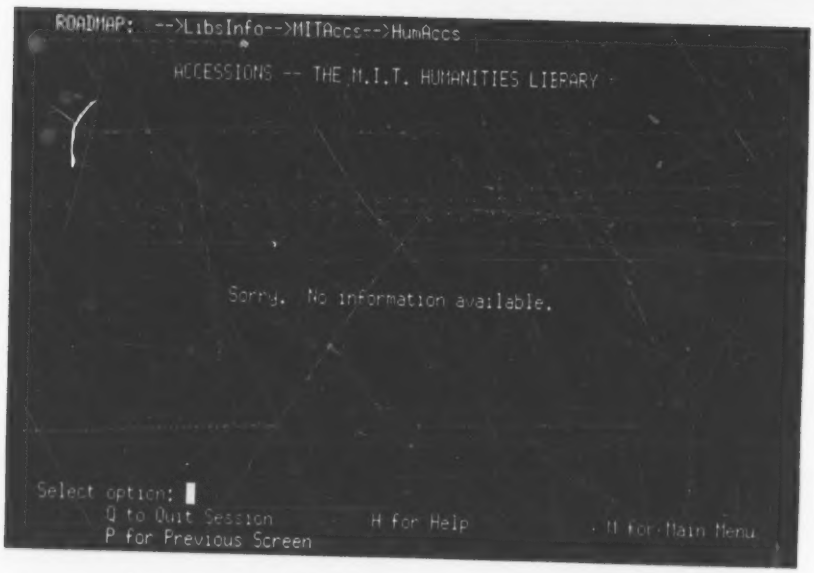
Screen 44

Screen 45

BEST COPY AVAILABLE

Screen 46

Screen 47



Screen 48

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Screen 49

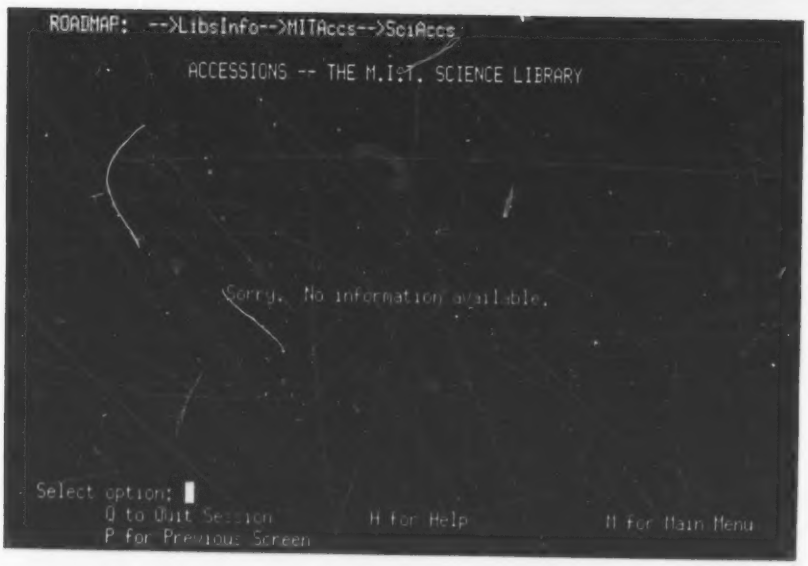
Screen 50

Screen 51

BEST COPY AVAILABLE

Screen 52

Screen 53



Screen 54

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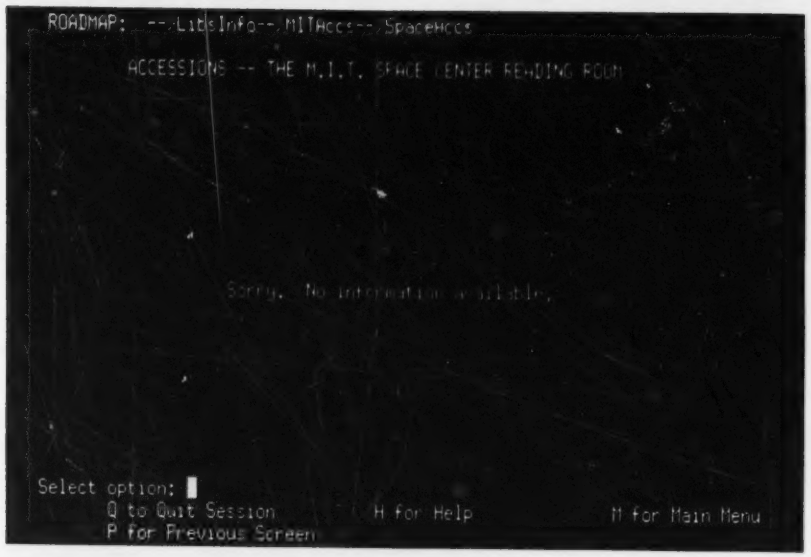
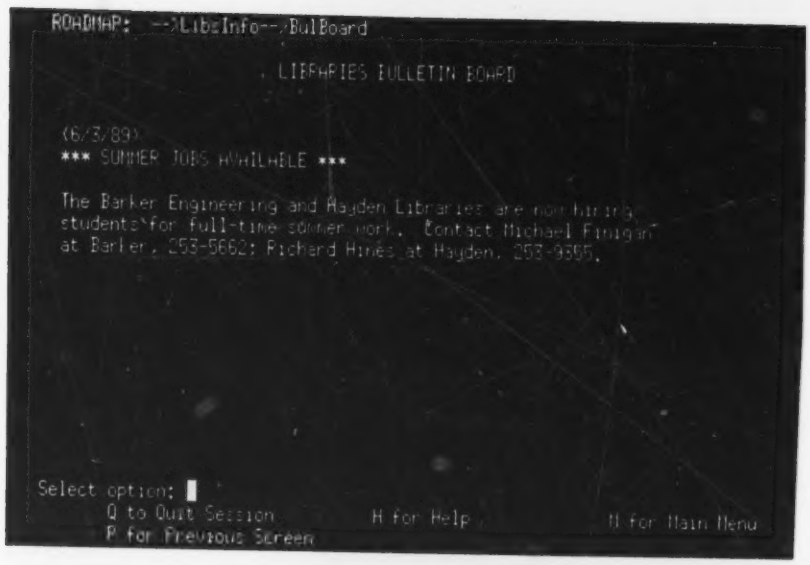
Screen 55



Screen 56


ROADMAP: -->LibsInfo-->BulBoard
LIBRARIES BULLETIN BOARD
(6/3/89)
*** SUMMER JOBS AVAILABLE ***
The Barker Engineering and Hayden Libraries are now hiring students for full-time summer work. Contact Michael Finigan at Barker, 253-5662; Richard Hines at Hayden, 253-9355.
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen

Screen 57

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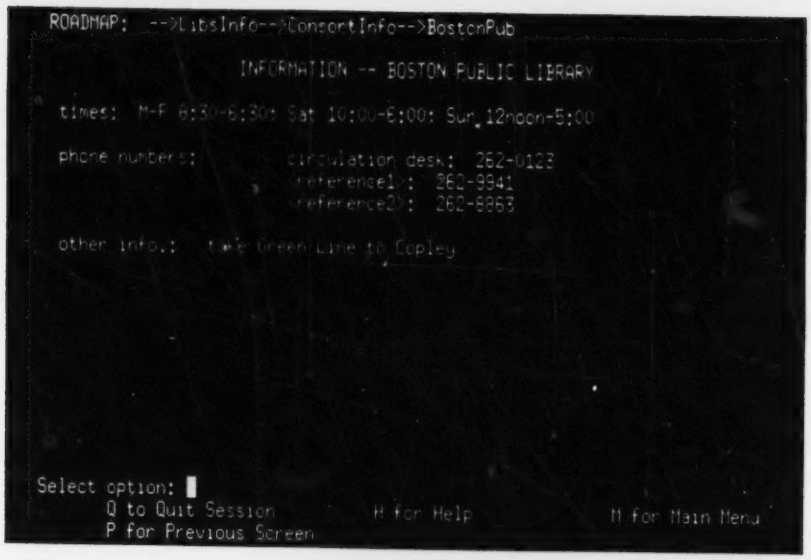
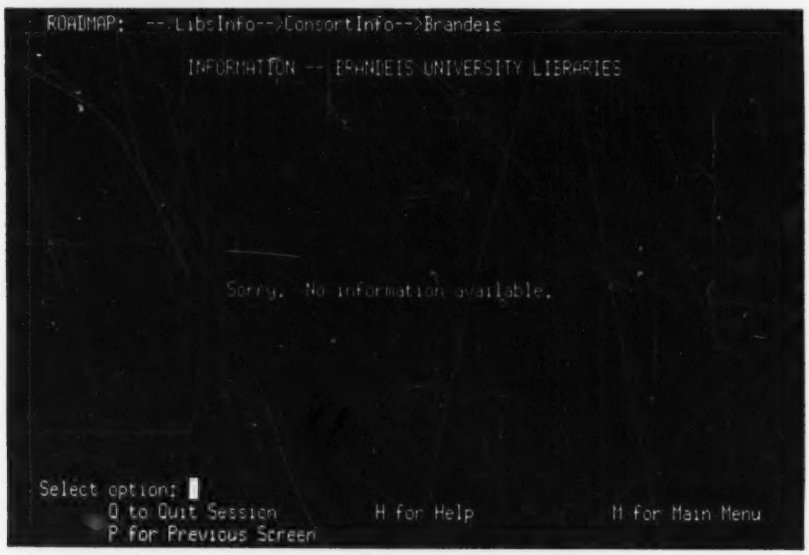


Screen 58



Screen 59

Screen 60

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Screen 61

Screen 62

Screen 63

BEST COPY AVAILABLE

Screen 64

Screen 65

Screen 66

BEST COPY AVAILABLE

Screen 67

Screen 68.

Screen 69

ROADMAP: -->Main-->EMail-->LibrarianHelp
Request 1
REQUEST FOR LIBRARIAN HELP -- TEMPLATE
1. Topic:
(Line Two):
(Line Three):
2. A specific librarian (if none, leave blank):
Do you want to place this request (Y/N)? y
---------- Personal Information ----------
1. Name:
2. Mailing address:
(Line Two):
3. Telephone number:
4. Status (type faculty, student, other):
5. Not needed after:
REQUEST PLACED. YOU WILL BE CONTACTED AS SOON AS POSSIBLE
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen
A for Another Request

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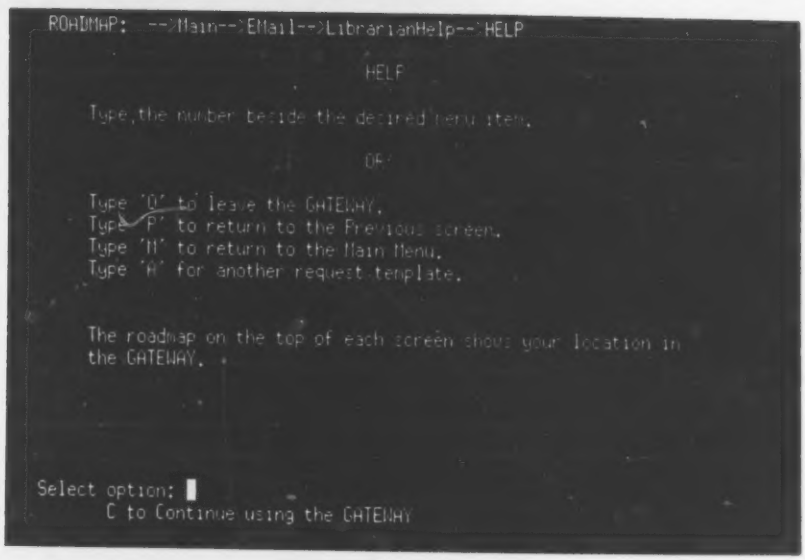
Screen 70


ROADMAP: -->Main-->EMail-->LibrarianHelp-->HELP
HELP
Type the number beside the desired menu item.
OR
Type 'O' to leave the GATEWAY.
Type 'P' to return to the Previous screen.
Type 'M' to return to the Main Menu.
Type 'A' for another request template.
The roadmap on the top of each screen shows your location in the GATEWAY.
Select option:
C to Continue using the GATEWAY

Screen 71

Screen 72

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Screen 73

```
ROADMAP:  -->Main--> EMail-->OLSearch                          Request 1

                    ONLINE SEARCH REQUEST -- TEMPLATE

     1. Topic:
        (Line Two):
        (Line Three):
     2. Keywords: (as many as applicable):
        (Line Two):
        (Line Three):

   Do you want to place this request (Y/N)? y

     ------------- Personal Information -------------
     1. Name:
     2. Mailing address:
           (Line Two):
     3. Telephone number:
     4. Status (type faculty, student, other):
     5. Not needed after:
  ***REQUEST PLACED.  YOU WILL BE CONTACTED AS SOON AS POSSIBLE***
 Select option:
        Q to Quit Session          H for Help              M for Main Menu
        P for Previous Screen      A for Another Request
```

Screen 74

```
ROADMAP:  -->Main-->EMail-->OLSearch                           Request 1

                    ONLINE SEARCH REQUEST -- TEMPLATE

     1. Topic:
        (Line Two):
        (Line Three):
     2. Keywords: (as many as applicable):
        (Line Two):
        (Line Three):

   Do you want to place this request (Y/N)? y

     ------------- Personal Information -------------
     1. Name:
     2. Mailing address:
           (Line Two):
     3. Telephone number:
     4. Status (type faculty, student, other):
     5. Not needed after:
  ***REQUEST PLACED.  YOU WILL BE CONTACTED AS SOON AS POSSIBLE***
 Select option:
        Q to Quit Session          H for Help              M for Main Menu
        P for Previous Screen      A for Another Request
```

Screen 75

```
ROADMAP:  -->Main-->EMail-->OLSearch                           Request 2

                    ONLINE SEARCH REQUEST -- TEMPLATE

     1. Topic:
        (Line Two):
        (Line Three):
     2. Keywords: (as many as applicable):
        (Line Two):
        (Line Three):
```

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Screen 76

Screen 77

Screen 78

BEST COPY AVAILABLE

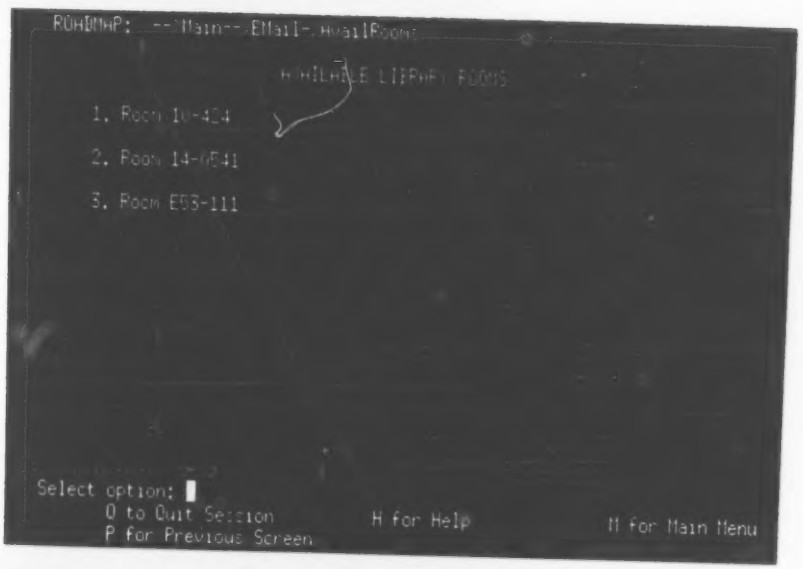
Screen 79

Screen 80

Screen 81

BEST COPY AVAILABLE

Screen 82



Screen 83

Screen 84

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Screen 85

Screen 86

Screen 87

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```
ROADMAP: -->Main-->EMail-->ILL-->JournTemp                    Request 1

          INTERLIBRARY LOAN REQUEST -- JOURNAL TEMPLATE

    1. Article author:
    2. Article title:
    3. Journal title:
    4. Year:
    5. Volume #:
    6. Pages:
```

Screen 88

```
ROADMAP: -->Main-->EMail-->ILL-->JournTemp                    Request 1

          INTERLIBRARY LOAN REQUEST -- JOURNAL TEMPLATE

    1. Article author:
    2. Article title:
    3. Journal title:
    4. Year:
    5. Volume #:
    6. Pages:

  Do you want to place this request (Y/N)? n

 ***REQUEST CANCELLED***
Select option:
      Q to Quit Session          H for Help              M for Main Menu
      P for Previous Screen      A for Another Request
```

Screen 89

```
ROADMAP: -->Main-->EMail-->ILL-->JournTemp                    Request 1

          INTERLIBRARY LOAN REQUEST -- JOURNAL TEMPLATE

    1. Article author:
    2. Article title:
    3. Journal title:
    4. Year:
    5. Volume #:
    6. Pages:

  Do you want to place this request (Y/N)? y

    ------------- Personal Information -------------
    1. Name:
    2. Mailing address:
          (Line Two):
    3. Telephone number:
    4. Status (type faculty, student, other):
    5. Not needed after:
 ***REQUEST PLACED.  YOU WILL BE CONTACTED AS SOON AS POSSIBLE**
Select option:
      Q to Quit Session          H for Help              M for Main Menu
      P for Previous Screen      A for Another Request
```

Screen 90

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Screen 91

Screen 92

Screen 93

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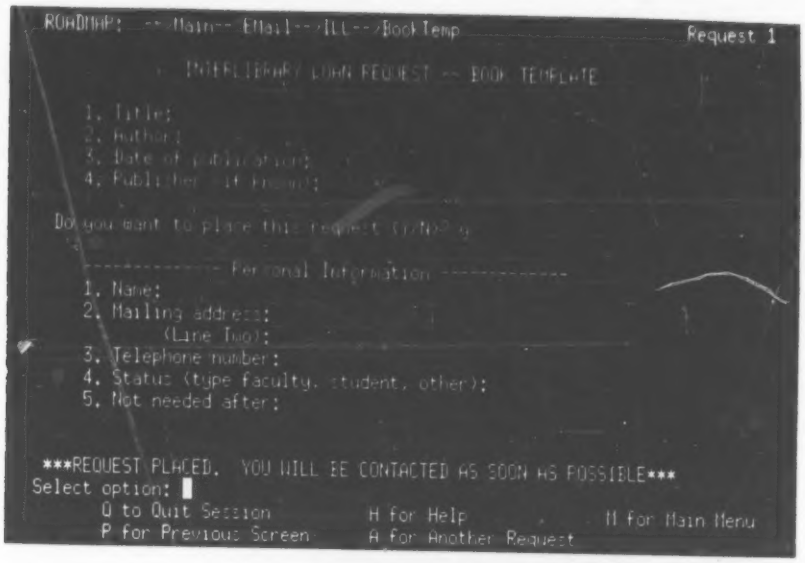
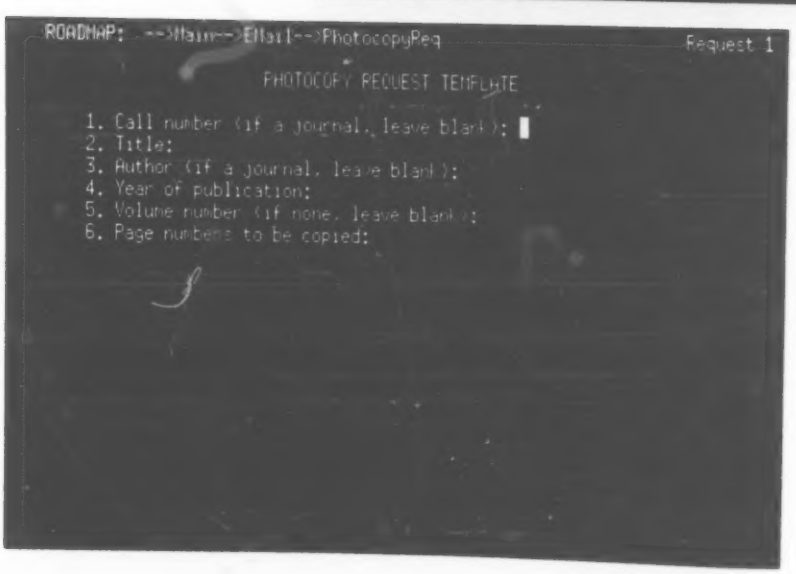


Screen 94

Screen 95


ROADMAP: -->Main-->EMail-->PhotocopyReq
Request 1
PHOTOCOPY REQUEST TEMPLATE
1. Call number (if a journal, leave blank):
2. Title:
3. Author (if a journal, leave blank):
4. Year of publication:
5. Volume number (if none, leave blank):
6. Page numbers to be copied:

Screen 96

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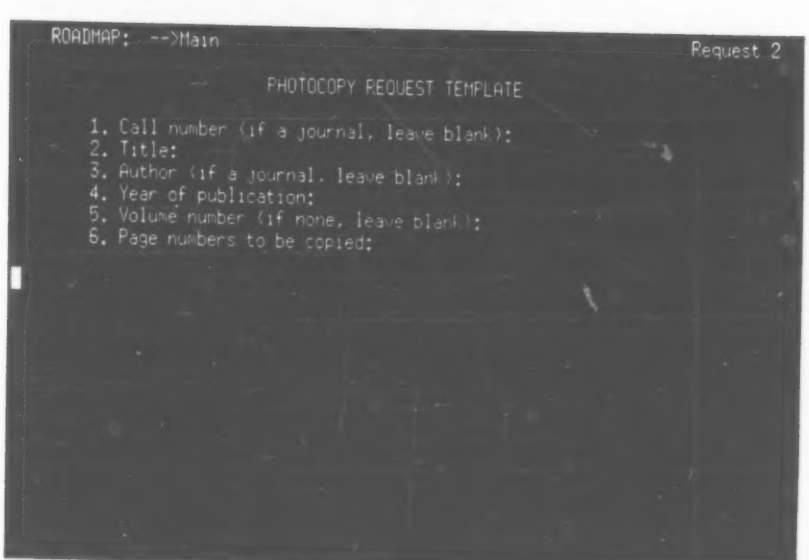
Screen 97

ROADMAP: -->Main-->EMail-->PhotocopyReq
Request 1
PHOTOCOPY REQUEST TEMPLATE
1. Call number (if a journal, leave blank):
2. Title:
3. Author (if a journal, leave blank):
4. Year of publication:
5. Volume number (if none, leave blank):
6. Page numbers to be copied:
Do you want to place this request (Y/N)? n
REQUEST CANCELLED
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen
A for Another Request

Screen 98

ROADMAP: -->Main-->EMail-->PhotocopyReq
Request 1
PHOTOCOPY REQUEST TEMPLATE
1. Call number (if a journal, leave blank):
2. Title:
3. Author (if a journal, leave blank):
4. Year of publication:
5. Volume number (if none, leave blank):
6. Page numbers to be copied:
Do you want to place this request (Y/N)? y
---------- Personal Information ----------
1. Name:
2. Mailing address:
(Line Two):
3. Telephone number:
4. Status (type faculty, student, other):
5. Not needed after:
REQUEST PLACED. YOU WILL BE CONTACTED AS SOON AS POSSIBLE
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen
A for Another Request

Screen 99


ROADMAP: -->Main
Request 2
PHOTOCOPY REQUEST TEMPLATE
1. Call number (if a journal, leave blank):
2. Title:
3. Author (if a journal, leave blank):
4. Year of publication:
5. Volume number (if none, leave blank):
6. Page numbers to be copied:

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ROADMAP: -->Main-->EMail-->StorageReq Request 1
STORAGE REQUEST TEMPLATE
1. Call number (if a journal, leave blank):
2. Title:
3. Author (if a journal, leave blank):
4. Year of publication:
5. Volume number (if none, leave blank):
6. Pages:

Screen 100

ROADMAP: -->Main-->EMail-->StorageReq Request 1
STORAGE REQUEST TEMPLATE
1. Call number (if a journal, leave blank):
2. Title:
3. Author (if a journal, leave blank):
4. Year of publication:
5. Volume number (if none, leave blank):
6. Pages:
Do you want to place this request? n
REQUEST CANCELLED
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen
A for Another Request

Screen 101

ROADMAP: -->Main-->EMail-->StorageReq Request 1
STORAGE REQUEST TEMPLATE
1. Call number (if a journal, leave blank):
2. Title:
3. Author (if a journal, leave blank):
4. Year of publication:
5. Volume number (if none, leave blank):
6. Pages:
Do you want to place this request? y
---------- Personal Information ----------
1. Name:
2. Mailing address:
(Line Two):
3. Telephone number:
4. Status (type faculty, student, other):
5. Not needed after:
REQUEST PLACED. YOU WILL BE CONTACTED AS SOON AS POSSIBLE
Select option:
Q to Quit Session
H for Help
M for Main Menu
P for Previous Screen
A for Another Request

Screen 102

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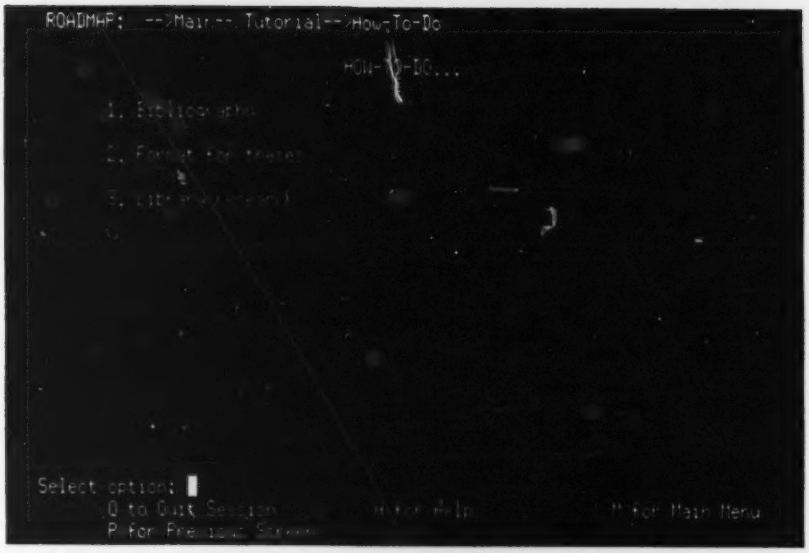
Screen 103

Screen 104

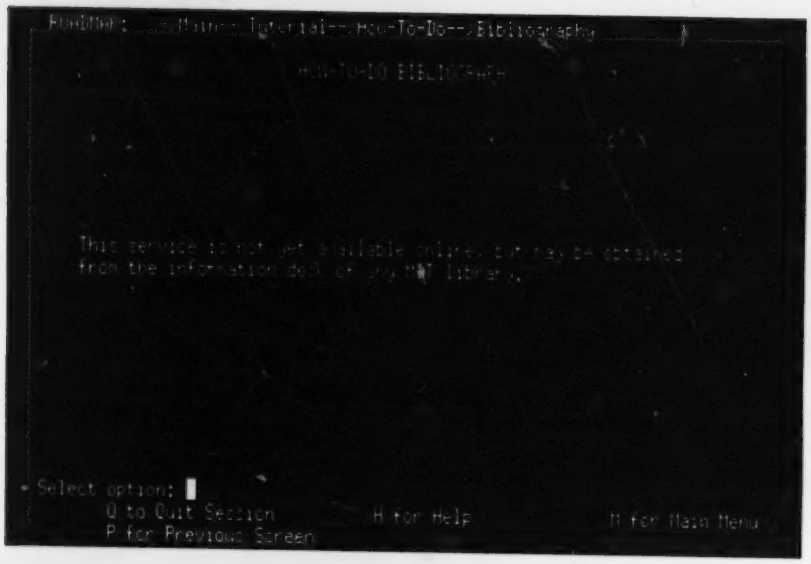
Screen 105

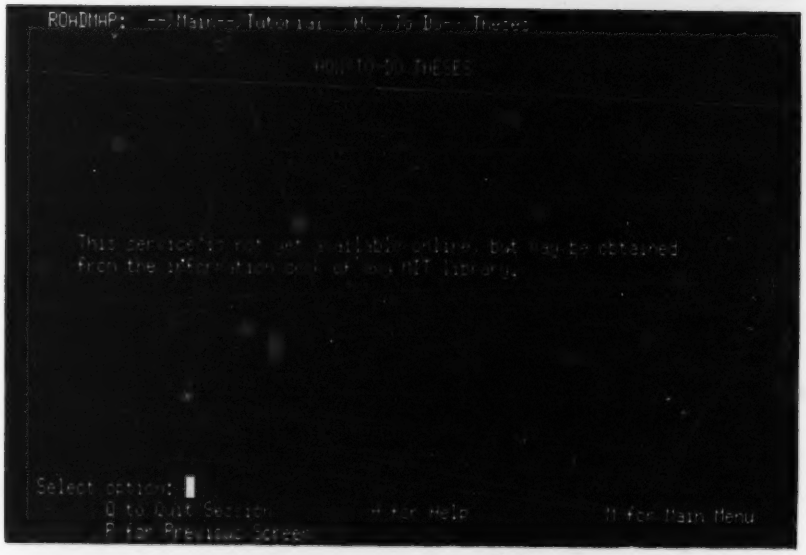
BEST COPY AVAILABLE



Screen 106

Screen 107





Screen 108

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Screen 109

ROADMAP: -->Main-->Tutorial-->How-To-Do
HOW-TO-DO RESEARCH
This service is not yet available online, but may be obtained
from the information desk at any MIT library.
Select option:
Q to Quit Session
P for Previous Screen
?for Help
M for Main Menu

Screen 110

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